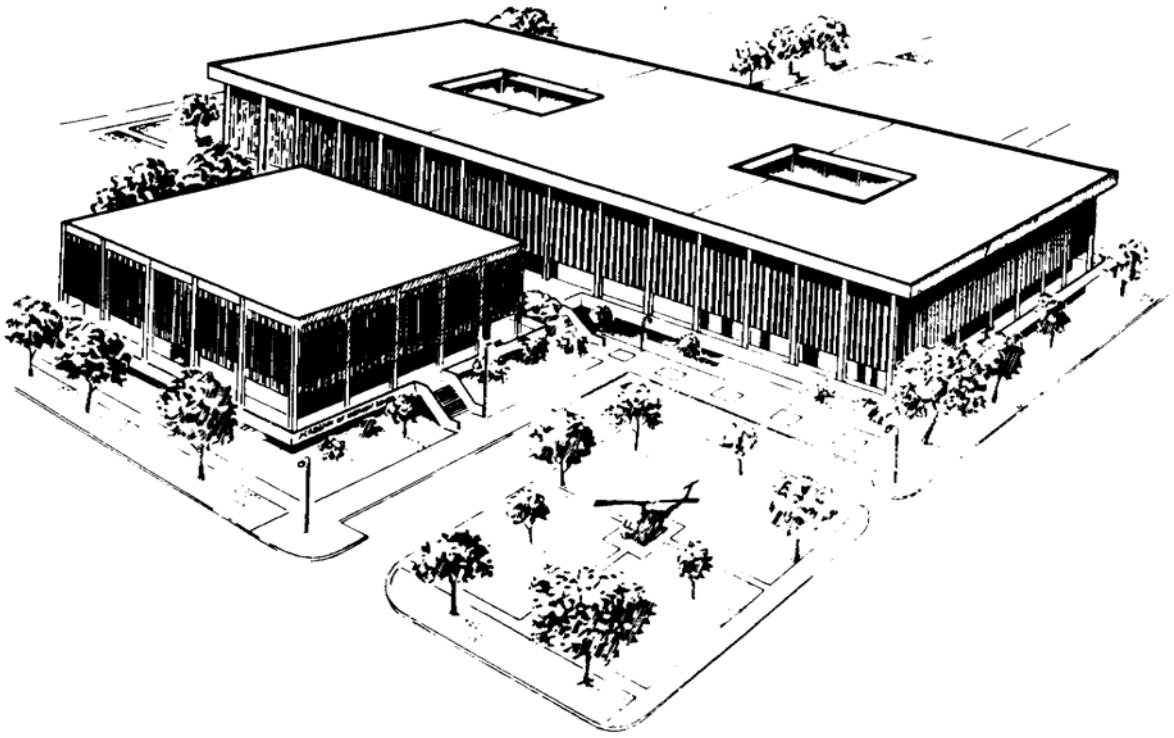
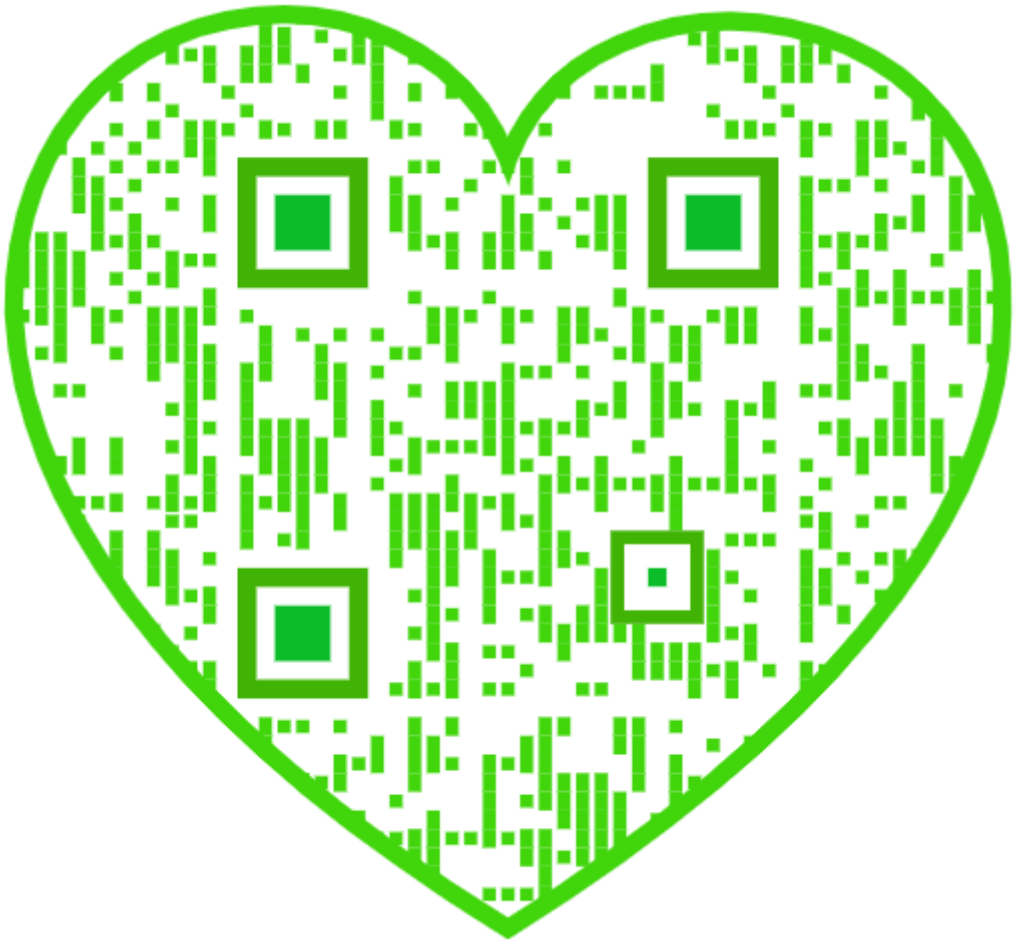
U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL
FORT SAM HOUSTON, TEXAS 78234-6100



OBSTETRICS AND NEWBORN CARE II

SUBCOURSE MD0922 **EDITION 100**



DEVELOPMENT

This subcourse is approved for resident and correspondence course instruction. It reflects the current thought of the Academy of Health Sciences and conforms to printed Department of the Army doctrine as closely as currently possible. Development and progress render such doctrine continuously subject to change.

ADMINISTRATION

For comments or questions regarding enrollment, student records, or shipments, contact the Nonresident Instruction Section at DSN 471-5877, commercial (210) 221-5877, toll-free 1-800-344-2380; fax: 210-221-4012 or DSN 471-4012, e-mail accp@amedd.army.mil, or write to:

COMMANDER
AMEDDC&S
ATTN MCCS HSN
2105 11TH STREET SUITE 4192
FORT SAM HOUSTON TX 78234-5064

Approved students whose enrollments remain in good standing may apply to the Nonresident Instruction Section for subsequent courses by telephone, letter, or e-mail.

Be sure your social security number is on all correspondence sent to the Academy of Health Sciences.

CLARIFICATION OF TRAINING LITERATURE TERMINOLOGY

When used in this publication, words such as "he," "him," "his," and "men" are intended to include both the masculine and feminine genders, unless specifically stated otherwise or when obvious in context.
.

.

TABLE OF CONTENTS

Lesson		Paragraphs
INTRODUCTION		
1	COMPLICATIONS OF PREGNANCY	1-1--1-17
	Exercises	
2	STAGES OF LABOR AND NURSING CARE	2-1--2-16
	Section I. OVERVIEW	2-1--2-3
	Section II. FIRST STAGE OF LABOR	2-4--2-5
	Section III. SECOND STAGE OF LABOR (DELIVERY STAGE)	2-6--2-10
	Section IV. THIRD STAGE OF LABOR (PLACENTAL STAGE)	2-11--2-13
	Section V. FOURTH STAGE OF LABOR (RECOVERY STAGE)	2-14--2-16
	Exercises	
3	PRECIPITATE AND EMERGENCY DELIVERY	3-1--3-7
	Exercises	
4	MANAGEMENT OF OBSTETRIC DISCOMFORT DURING LABOR	4-1--4-11
	Exercises	
5	SPECIAL SITUATIONS IN LABOR AND DELIVERY	5-1--5-11
	Exercises	
6	THE POSTPARTAL PATIENT	6-1--6-20
	Section I. CHANGES OF THE POSTPARTAL PATIENT	6-1--6-6
	Section II. PSYCHOLOGICAL NEEDS OF THE POSTPARTAL PATIENT	6-7--6-11
	Section III. COMPLICATIONS OF POSTPARTUM	6-12--6-20
	Exercises	
7	CHARACTERISTICS OF THE TYPICAL NEWBORN INFANT	7-1--7-10
	Exercises	
8	CARE OF THE NORMAL NEWBORN INFANT	8-1--8-14
	Exercises	
9	NEWBORN NUTRITION	9-1--9-10
	Exercises	

10 THE PREMATURE INFANT 10-1--10-8
Exercises

11 THE SICK NEONATE 11-1--11-12
Exercises

GLOSSARY

CORRESPONDENCE COURSE OF THE
U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL
SUBCOURSE MD0922

OBSTETRIC AND NEWBORN CARE II

INTRODUCTION

Subcourse MD0922, Obstetric and Newborn Care II, is a continuation from Subcourse MD0921, Obstetric and Newborn Care I. This subcourse will further explain the many physiological and psychological changes that a woman may experience throughout her pregnancy, during labor and delivery, and the period after delivery. The practical nurse, along with other members of the nursing staff, have a great responsibility of teaching and providing quality nursing care for the health and well-being of the mother and the newborn.

Subcourse Components:

This subcourse consists of 11 lessons and a glossary. The lessons are as follows:

Lesson 1, Complications of Pregnancy.

Lesson 2, Stages of Labor and Nursing Care.

Lesson 3, Precipitate and Emergency Delivery.

Lesson 4, Management of Obstetric Discomfort During Labor.

Lesson 5, Special Situations in Labor and Delivery.

Lesson 6, The Postpartal Patient.

Lesson 7, Characteristics of the Typical Newborn Infant.

Lesson 8, Care of the Normal Newborn Infant.

Lesson 9, Newborn Nutrition.

Lesson 10, The Premature Infant.

Lesson 11, The Sick Neonate.

Glossary

Credit Awarded:

To receive credit hours, you must be officially enrolled and complete an examination furnished by the Nonresident Instruction Section at Fort Sam Houston, Texas. Upon successful completion of the examination for this subcourse, you will be awarded 15 credit hours.

You can enroll by going to the web site http://atrrs.army.mil and enrolling under "Self Development" (School Code 555).

A listing of correspondence courses and subcourses available through the Nonresident Instruction Section is found in Chapter 4 of DA Pamphlet 350-59, Army Correspondence Course Program Catalog. The DA PAM is available at the following website: http://www.usapa.army.mil/pdffiles/p350-59.pdf.

LESSON ASSIGNMENT

LESSON 1	Complications of Pregnancy.
LESSON ASSIGNMENT	Paragraphs 1-1 through 1-17.
LESSON OBJECTIVE	After completing this lesson, you should be able to:

1-1. Identify facts concerning complications and nursing implications of a pregnant woman, including are nausea and vomiting, hyperemesis gravidarum, heartburn, varicosities, infections, diabetes, hypertension, substance abuse, battered pregnant women, problem of Rh incompatibility, ectopic pregnancy, placenta previa, abruptio placenta, abortion, prolapsed umbilical cord, and premature labor.

SUGGESTION After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 1

COMPLICATIONS OF PREGNANCY

1-1. GENERAL

Being aware of conditions that can cause complications in pregnant women will be an asset to you, as a practical nurse, in your knowledge and skills in providing care to the patient. Complications of pregnancy can be an emotional crisis to a patient and her support person. Prenatal care allows for early identification and management of a patient with complications.

1-2. NAUSEA AND VOMITING

a. One of the first discomforts experienced in pregnancy, which generally occurs in the morning is nausea and vomiting. It is attributed to the great hormonal changes during the early stages of pregnancy.

b. Nursing interventions consist of advising the patient:

(1) To eat small, frequent meals instead of three large meals.

(2) To drink liquids (such as 7-Up™ or ginger ale) between meals instead of with meals.

(3) To eat a few crackers or toast before getting out of bed in the morning.

(4) That the nausea and vomiting should subside in the second trimester of pregnancy, but if not, she **MUST** report this condition to her health care provider.

1-3. HYPEREMESIS GRAVIDARUM

a. Hyperemesis gravidarum refers to persistent severe nausea and vomiting which results in dehydration, ketouria, and possible weight loss. The exact cause is unknown. If left untreated, it can cause fetal death.

b. Nursing implications include the following:

(1) Record accurate intake and output to include emesis.

(2) Monitor intravenously (IV) solutions ordered by the physician.

(3) Record the patient's weight daily.

(4) Assess the patient for skin damage if dehydration is obvious.

(5) Implement prophylactic measures (lotions, massages, op-site) to prevent skin breakdown.

(6) Be alert to the psychological needs of the patient. She may be concerned about this crisis and of the results on herself and the fetus.

1-4. HEARTBURN

a. Heartburn is a burning sensation in the epigastric and sternal region. It results from relaxation of the cardiac sphincter and the decreased tone and mobility of smooth muscles due to increased progesterone, thereby allowing for esophageal regurgitation, decreased emptying time of the stomach, and reverse peristalsis. Heartburn has nothing to do with the heart. It occurs more frequently as pregnancy advances as a result of decreased peristalsis and pressure of the growing fetus on the stomach.

b. Nursing interventions consist of advising the patient to:

(1) Not to lie flat after eating. Sitting or walking helps gravity move the food through the gastrointestinal tract.

(2) Drink a glass of milk about 1/2 hour before eating. This will inhibit the secretion of stomach acid.

(3) Avoid eating or drinking gas-forming foods or fluids (cabbage, beans, cokes, etc.).

(4) Not take any antacid unless ordered by her obstetric (OB) practitioner or physician. Sodium bicarbonate and Alka-Seltzer™ contain high amounts of sodium.

(5) Eat small, frequent, non-spicy, non-fried meals and drink adequate fluids.

1-5. INFECTIONS

a. There are many types of infection which the patient can contact during pregnancy. However, the most prevalent infections are urinary track infections, venereal diseases, and human immunodeficiency virus (HIV).

(1) Urinary track infections. Infections of the urinary track are common during pregnancy. The infections are caused by the narrowing of the lower urethra and dilation of the upper urethra. This action results in a slowing of urination, which increases the risk of infection.

(2) Venereal diseases. Venereal disease (VD) or sexually-transmitted disease (STD) refers to one of a number of infectious diseases that are transmitted through sexual contact and may be localized or systemic. Common types of VD are gonorrhea, syphilis, venereal warts, and herpes simplex type II. Microorganisms from these diseases can cross the placenta barrier, placing the fetus at risk.

(3) Human immunodeficiency virus. The transmission of human immunodeficiency virus occurs primarily through the exchange of body fluids (blood, semen, and perinatal events). Severe depression of the cellular immune system characterizes acquired immune deficiency syndrome (AIDS). Exposure to the virus has a significant impact on the woman's pregnancy, the newborn's feeding method, and the newborn's health status. The HIV from infected pregnant women is transmitted in three ways:

(a) To the fetus-as early as the first trimester through maternal circulation.

(b) To the infant-during labor and delivery by inoculation or ingestion of maternal blood and other infected fluids.

(c) To the infant-through breast milk.

b. Nursing implications include the following.

(1) Teach the patient to attend scheduled prenatal appointments.

(2) Inform the patient of specific lab tests that will be obtained for early detection of diseases (VDRL, gonorrheal culture, and HIV blood tests).

1-6. VARICOSITIES (VARICOSE VEINS)

a. Varicosities refer to dilated, tortuous veins that result from incompetent values within those veins. The valves close incompetently or not at all. Blood is thus permitted to seep backward rather than being propelled always toward the heart. This seepage causes further congestion of the part with venous blood and further distention of the veins.

b. Factors associated with varicosities include the following.

(1) The saphenous veins of the legs are commonly affected with varicosities. It can also occur in the external genitalia (vulva or labia), the pelvis, and the perianal area (hemorrhoids).

(2) Some people have familial tendency toward varicosities.

(3) Weight gain associated with the enlarging uterus impairs venous return.

(4) Prolonged sitting (to include with legs crossed at knees) and standing can contribute to development of varicosities.

(5) Wearing of constrictive clothing may also cause varicosities.

(6) Relaxation of smooth muscles, which is due to hormonal changes during pregnancy, is also thought to contribute to the development of varicosities.

(7) Varicosities are seen as dark blue or purplish swellings.

(8) The patient may complain of heavy and tired feelings in the legs or a burning, cramping sensation.

c. Nursing implications include the following.

(1) Encourage the patient to lie down with her hips/legs elevated periodically throughout the day.

(2) Inform the patient that elastic stockings applied before rising may lessen discomfort.

(3) Inform the patient of proper nutritional habits to avoid constipation.

(4) Inform the patient not to bear down with bowel movements.

(5) Inform the patient to avoid prolonged sitting or standing greater than 15 minutes without a change of position.

(6) Inform the patient not to massage her legs.

(7) Inform the patient to discuss possible surgical treatment of varicosities if persistent after pregnancy.

1-7. DIABETES MELLITUS

a. Maternal acidosis refers to a complex disorder of carbohydrates, fat, and protein metabolism caused primarily by a relative or complete lack of insulin secretion by the beta cells of the pancreas. Although there is an overall improvement in the perinatal outcome of the well-managed diabetic pregnancy, there is still a significant risk for neonatal morbidity. The most common cause of fetal death associated with diabetes is maternal acidosis. Possibilities of diabetes being present are:

(1) Birth of a large baby over nine pounds.

(2) Repetitive, spontaneous abortions.

(3) Unexplained stillbirth.

(4) Excessive amniotic fluid (Polyhydramnios).

b. Diabetic patients are at risk for developing preeclampsia. They also have a risk of a difficult delivery as a result of the large size of the baby.

c. Nursing implications are as follow.

(1) Test patient's urine for glucose with clinitest tabs as ordered by OB practitioner or physician.

(2) Administer oral hypoglycemic medications or insulin as ordered by the OB practitioner or physician.

(3) Teach the patient the left lateral-recumbent position to rest. This position improves intrauterine blood flow and may decrease the occurrence of preeclampsia.

(4) Apply all nursing implications learned for the care of an adult with diabetes.

1-8. HYPERTENSION-PREGNANCY-INDUCED

Hypertension-Pregnancy-Induced (PIH) is another name for preeclampsia or eclampsia. It is a serious, statistically important disorder characterized by the development after the twentieth week of gestation of hypertension, with albuminuria or edema or both. The exact cause of PIH is unknown.

a. **Preeclampsia**. The signs of preeclampsia are referred as being classic (see figure 1-1).

(1) Hypertension. Hypertension is blood pressure, which is greater than 140/90, but less that 160/110.

(2) Albuminuria. Albumin (a protein) is not normally found in the urine.

(3) Edema. There is a swelling of the upper body (hands and face) in addition to swelling of the ankles, which is normally seen in pregnancy.

b. **Eclampsia**. This refers to the progression of the above classic signs with the addition of convulsions or a coma.

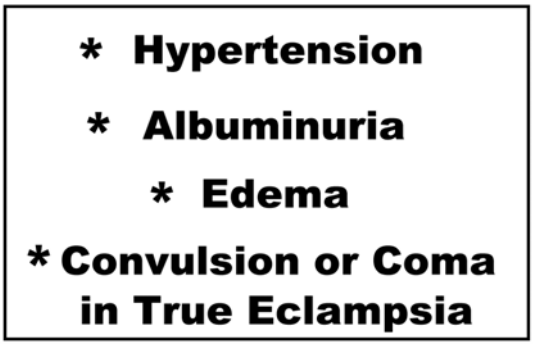


Figure 1-1. Classic signs of preeclampsia and eclampsia.

c. **Nursing Implications**.

(1) Inform the patient to record her weight weekly and to notify the clinic if there is an excessively amount of weight gained.

(2) Inform the patient to avoid foods high in sodium content. This will reduce water retention/edema.

(3) Inform the patient that prevention of preeclampsia is essential to a healthy pregnancy and keeping scheduled OB appointments is a must.

1-9. SUBSTANCE ABUSE

a. The adverse effects of exposure of the fetus to drugs are variable. They include transient behavioral changes (such as fetal breathing movements) or irreversible effects (such as fetal death, intrauterine growth retardation, structure malformations, or mental retardation). Maternal use of drugs may be for the pharmacologic control of disease process (for example, insulin) or for symptomatic relief of benign problems (for example, aspirin). In addition to the therapeutic use of drugs, the nontherapeutic use of drugs such as alcohol, nicotine, or narcotics poses threats to the fetal's well-being. Substance abuse results in fetal alcohol syndrome (FAS), a syndrome characterized by physical and mental abnormalities of the newborn.

b. Nursing implications are listed below.

(1) Apply all general nursing implications related to the substance abuse patient.

(2) Participate in health team discharge planning for the substance dependent mother and newborn with social services.

1-10. BATTERED PREGNANT WOMEN

a. The battered, pregnant woman often has medical, social, and psychological needs that require special attention. An assault on a pregnant patient jeopardizes her body as well as the fetus. The patient suffers extensive psychological trauma.

b. Nursing implications are listed below.

(1) Assess the emotional needs of the patient and the significant support person.

(2) Promote a trust relationship which will foster self-esteem and a positive pregnancy experience.

(3) Inform the patient and the spouse about counseling.

1-11. RhoGAM® INCOMPATIBILITY

a. RhoGAM® incompatibility occurs when the Rh-negative pregnant patient carries an Rh-positive fetus. The patient's body reacts to the "foreign" fetus blood type. The mother produces antibodies that in-turn causes destruction of the fetus red blood cells (hemolysis). Hemolysis of the fetus red blood cells deprives the fetus of oxygen (erythroblastosis fetalis).

b. The treatment for Rh incompatability is given below.

(1) RhoGAM® (immune globulin) administered 72 hours following the birth of an Rh-positive child will eliminate maternal isoimmunization. Refer to figure 1-2.

(2) An Rh-negative patient whose sex partner is Rh-positive, who aborts or has an ectopic pregnancy, should receive RhoGAM®. This is essential to prevent the patient from developing Rh-positive antibodies.

c. Nursing implications are listed below.

(1) Follow the obstetrics (OB) practitioner's or physician's orders for drawing of Rh antibody titer.

(2) Follow delivery room standing operating procedure (SOP) to obtain cord blood sample to determine baby's blood type.

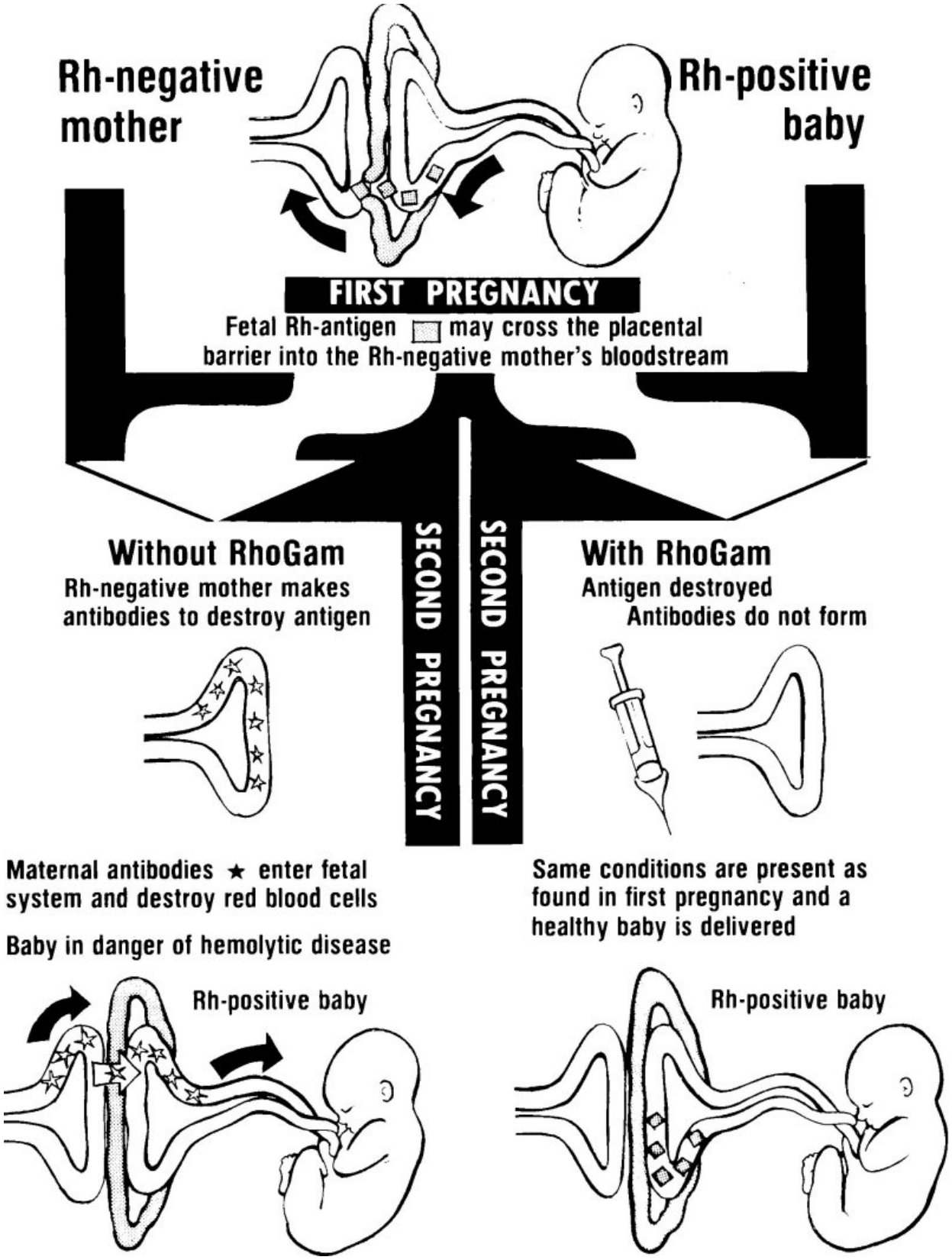

Rh-negative mother
Rh-positive baby
FIRST PREGNANCY
Fetal Rh-antigen may cross the placental barrier into the Rh-negative mother's bloodstream
Without RhoGam
Rh-negative mother makes antibodies to destroy antigen
SECOND PREGNANCY
SECOND PREGNANCY
With RhoGam
Antigen destroyed
Antibodies do not form
Maternal antibodies ★ enter fetal system and destroy red blood cells
Baby in danger of hemolytic disease
Rh-positive baby
Same conditions are present as found in first pregnancy and a healthy baby is delivered
Rh-positive baby

Figure 1-2. Rh factors.

1-12. ECTOPIC PREGNANCY

a. Ectopic pregnancy (figures 1-3 and 1-4) is any pregnancy that does not occupy the uterine cavity properly. The causes of ectopic pregnancy are abnormally narrowed fallopian tubes, infection (scar tissue on the fallopian tubes), or tumor formation. Hemorrhage is extremely serious. The classic symptom is a severe knife-like pain in the lower abdominant quadrant.

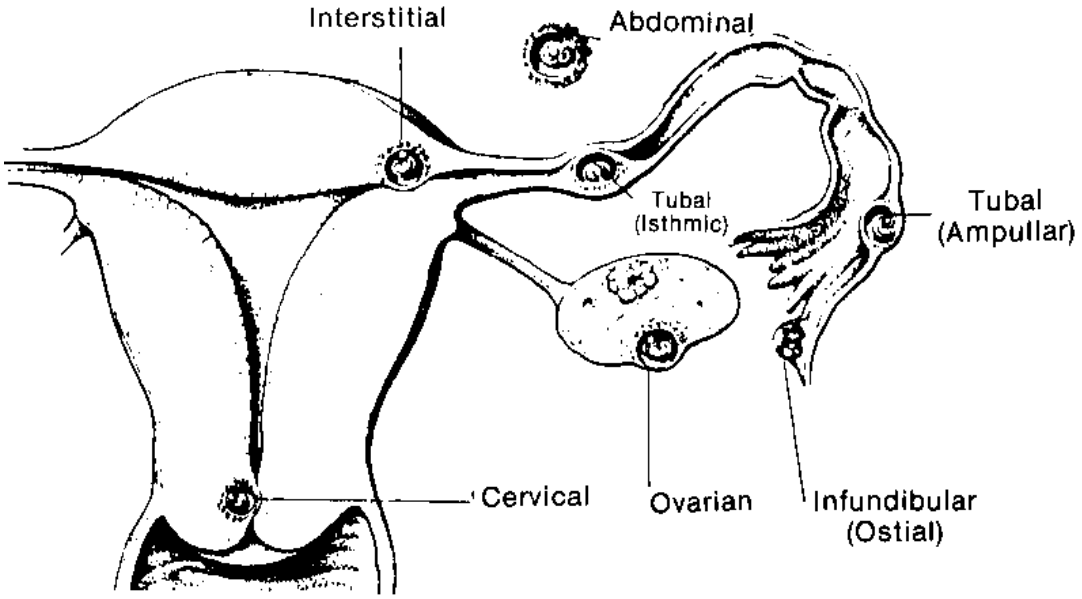


Figure 1-3. Sites of ectopic pregnancy.

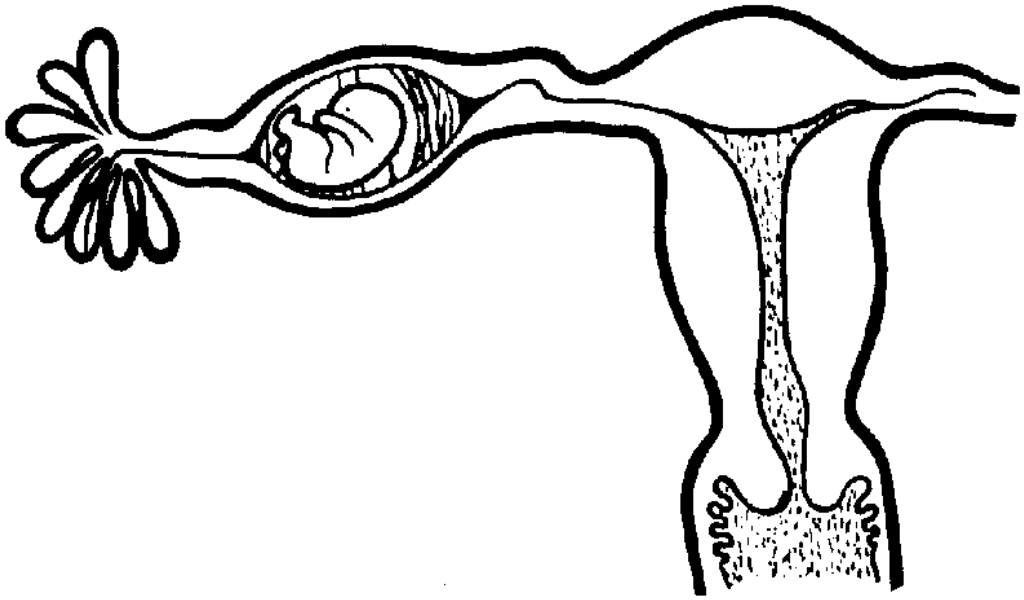


Figure 1-4. Tubal pregnancy.

b. Nursing implications are listed below.

(1) Provide comfort measures to the mother.

(2) Offer emotional support to anxious/frightened the mother.

(3) Offer emotional support to the mother as she is depressed from loss of her child.

(4) Assess the spiritual needs of mother and child.

1-13. PLACENTA PREVIA

a. Placenta previa is hemorrhage resulting from the low implantation of the placenta on the interior uterine wall. It is common in multiparous mothers. The cause is unknown.

b. There are three types of placenta previa. Each type is identified according to the degree to which condition is present (see figure 1-5).

(1) Total placenta previa. This occurs when the placenta completely covers the internal os.

(2) Partial placenta previa. This occurs when the placenta partially covers the internal os.

(3) Low implantation of placenta previa. This occurs when the placenta is attached at the opening or border to the cervical os, but not covering it.

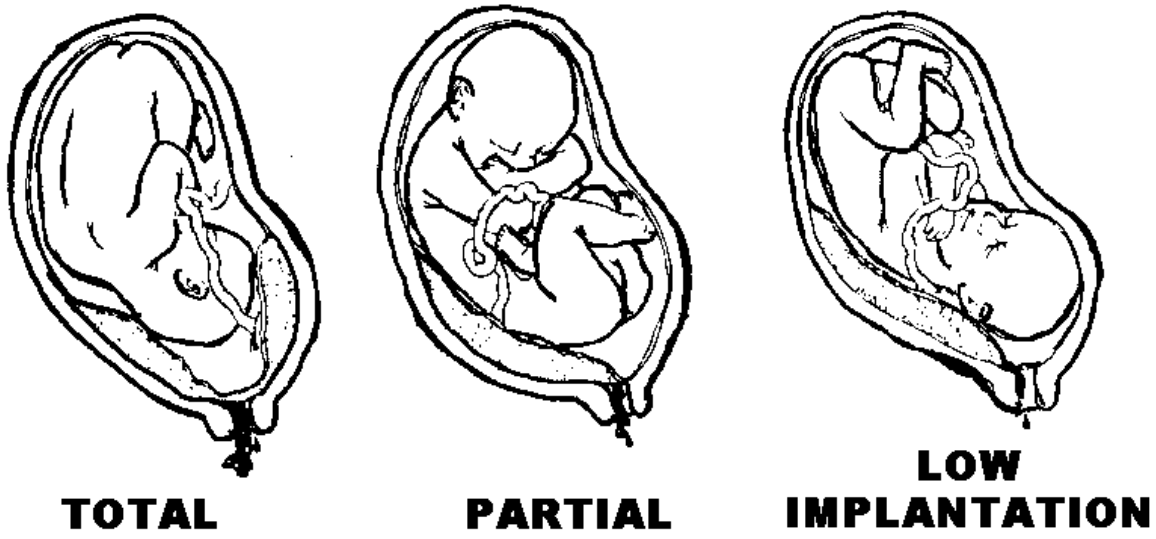


Figure 1-5. Types of placenta previa.

c. Nursing implications are listed below.

(1) Teach the patient to report any painless vaginal bleeding.

(2) Monitor vital signs. Hypovolemic shock may be present.

(3) Monitor fetal heart tones per orders.

1-14. ABRUPTIO PLACENTAE

a. Abruptio placentae is hemorrhage resulting from the detachment of the placenta. Hypertension may cause this. It may occur any time during pregnancy. If the placenta becomes detached prior to the 20th week of gestation it is called a spontaneous abortion.

b. Abruptio placentae may be classified in three types of separation (see 0figure 1-6).

(1) Marginal/low separation. This occurs when the separation is low and is not complete; vaginal hemorrhage is evident.

(2) Moderate/high separation. This occurs when the separation is high in the uterine segment, causing the fundus of the uterus to rise. The fetus is in grave danger because of lack of oxygen. External hemorrhage will probably not be present here, whereas the amniotic fluid will be a port-wine color.

(3) Severe/complete separation. This occurs when the fetus head is present in the cervical os that prevents external hemorrhage. The fetus is in grave danger, and an immediate cesarean section will probably be needed in order to save the baby's and mother's lives.

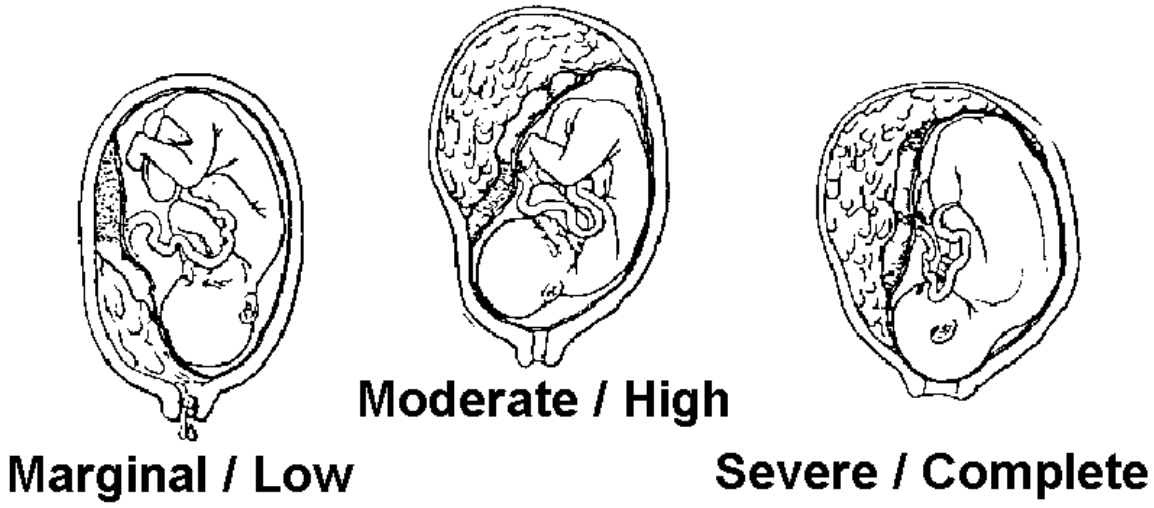


Figure 1-6. Types of abruptio placentae.

c. Nursing implications are listed below.

(1) Record amount and character of vaginal bleeding.

(2) Maintain thorough peri-care to keep the mother feeling clean.

(3) Monitor the fetal heart tones per order. Deceleration indicates diminishing placental function.

(4) Monitor the mother's vital signs per OB practitioner's or physician's orders. Death occurs from hypovolemic shock.

(5) Monitor IV fluids per order. IV fluids will be administered to replace fluid volume.

1-15. ABORTION

a. Abortion refers to the loss of the fetus before viability (twenty weeks gestation or fetal weight of 400 gr/14 oz) (see figure 1-7). The types of abortion are:

(1) Spontaneous (miscarriage)-the process starts of its own accord through natural causes.

(2) Induced-intervention by outside source whether therapeutic or other reasons.

(3) Threatened-possible, but can be prevented. Bleeding or spotting occurs with the cervix closed. The patient may have mild cramps.

(4) Inevitable-the process has gone so far that loss of the fetus will occur, it cannot be prevented.

(5) Incomplete-parts of the products of conception have been passed, but part (usually the placenta) is retained in the uterus.

(6) Complete-all products (placenta and fetus) of pregnancy are eliminated.

NOTE: See figure 1-7 for some types of abortion.

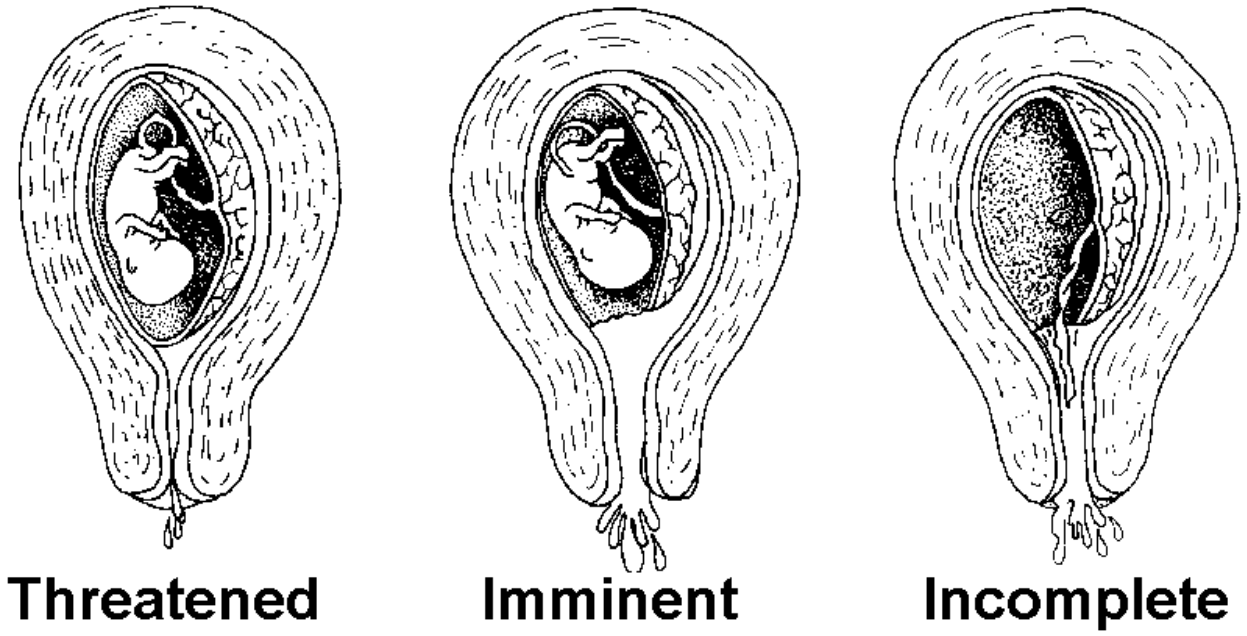


Figure 1-7. Some types of abortion.

b. Nursing implications are listed below.

(1) Implement all nursing measures for a patient on complete bed rest.

(2) Monitor peri-pads for amount and character of vaginal bleeding.

(3) Be knowledgeable of local laws which support legal abortions.

(4) Refer questions of legal abortions to immediate supervisor so further counseling can be offered to the mother.

(5) Assess the mother's emotional and spiritual needs.

1-16. PROLAPSED UMBILICAL CORD

a. A prolapsed umbilical cord occurs when the umbilical cord precedes the presenting part of the fetus so that the blood circulating inside the cord is clamped off by the passing fetus through the birth canal. This is considered an obstetric emergency.

b. Nursing implications are listed below.

(1) Monitor the fetal heart tones per orders.

(2) Examine the patient's vaginal canal to determine the presence of a cord.

(3) Notify your supervisor immediately.

1-17. PREMATURE LABOR AND BIRTH

a. Premature labor and birth refers to a baby born "before its time," that is, before the end of the 37th gestational week. Premature babies are likely to suffer respiratory distress. Medications may be administered to suppress the patient's labor. The medications are Brethina®, terbutaline, nifedipine, indomethacin, and magnesium sulfate.

b. Nursing implications are listed below.

(1) Monitor the patient who is receiving medications for hypotension and tachycardia. Report vital signs to your immediate supervisor.

(2) Be alert to the patient's psychological and spiritual needs. She may be frightened and anxious. Her labor will be very demanding since her baby is not fully prepared.

Continue with Exercises

EXERCISES, LESSON 1

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. _____ refers to severe nausea and vomiting.

2. A burning sensation in the epigastric and sternal region is known as:

   _____

3. List the types of infections that may cause complications for a pregnant woman.

   _____

   _____

   _____

4. List the nursing interventions for battered pregnant females.

   _____

   _____

   _____

5. _____ occurs when the Rh-negative pregnant patient carries an Rh-positive fetus.

6. Identify the types of abortions.

_____ - the process starts of its own accord through natural causes.

_____ - intervention by outside source.

_____ - possible, but can be prevented.

_____ - the process has gone so far that loss of the fetus will occur, cannot be prevented.

_____ - parts of the products of conception has been passed, but part (usually the placenta) is retained in the uterus.

_____ - all products (placenta and fetus) of pregnancy are eliminated.

Special Instructions for Exercises 7 through 14. Match the terms in Column A with the correct definition or statement as listed in Column B. Place the letter of the correct answer in the space provided to the left of Column A.

COLUMN A

___ 7. Abruptio placentae.

___ 8. Prolapsed umbilical cord.

___ 9. Varicosities.

___10. Placenta previa.

___11. Eclampsia.

___12. Preterm labor and birth.

___13. Abortion

___14. HIV

.

COLUMN B

a. Hemorrhage resulting from low implantation of the placenta on the interior uterine wall.

b. Lost of the fetus before 20 weeks of gestation.

c. A baby born before the end of the 37th gestational week.

d. Seen as dark blue or purplish swellings.

e. Hemorrhage resulting from detachment of the placenta.

f. An obstetric emergency during the birthing process.

g. Can be transmitted to the infant through breast milk.

h. Classic signs of preeclampsia plus coma or convulsion.

15. Identify the types of placenta previa and abruptio placentae.

    a. Occurs when the separation is high in the uterine segment, causing the fundus of the uterus to rise.

    _____

    b. Occurs when the placenta is attached at the opening or border to the cervical os, but not covering it.

    _____

    c. Occurs when the fetus head is present in the cervical os which prevents external hemorrhage.

    _____

    d. Occurs when the placenta completely covers the internal os.

    _____

    e. Occurs when the separation is low and is not complete; vaginal hemorrhage is evident.

    _____

    f. Occurs when the placenta partially covers the internal os

    _____

Check Your Answers on Next Page

SOLUTIONS, LESSON 1

1. Hyperemesis gravidarum. (para 1-3a)

2. Heartburn. (para 1-4a)

3. Urinary track infections.
   Venereal diseases.
   Human immunodeficiency virus (HIV). (para 1-5a)

4. Assess the emotional needs of the patient and the significant support person.

   Promote a trust relationship that will foster self-esteem and a positive pregnancy experience.

   Inform the patient and the spouse about counseling. (para 1-10b).

5. Rh incompatibility. (para 1-11a)

6. Spontaneous - the process starts of its own accord through natural causes.

   Induced - intervention by outside source.

   Threatened - possible, but can be prevented.

   Inevitable - the process has gone so far that loss of the fetus will occur,cannot be prevented.

   Incomplete - parts of the products of conception have been passed, but part (usually the placenta) is retained in the uterus.

   Complete - all products (placenta and fetus) of pregnancy are eliminated. (para 1-14a)

7. e (para 1-14a)

8. f (para 1-16a)

9. d (para 1-6b(7))

10. a (para 1-13a)

11. h para 1-8b and fig 1-1)

12. c (para 1-17a)

13. b (para 1-15a)

14. g para 1-5a(3)(c))

15. a. moderate/high separation

    b. low implantation of placenta previa

    c. severe/complete separation

    d. total placenta previa

    e. marginal/low separation

    f. partial placenta previa (paras 1-13b and 1-14b)

End of Lesson 1

LESSON ASSIGNMENT

LESSON 2 Stages of Labor and Nursing Care.

TEXT ASSIGNMENT Paragraphs 2-1 through 2-16.

LESSON OBJECTIVES After completing this lesson, you should be able to:

2-1. Identify the definition and process of labor.

2-2. Identify the signs and symptoms of true labor and false labor.

2-3. Identify descriptive phrases that concern the four stages of labor.

2-4. Identify those factors that distinguish the three phases of the first stage of labor.

2-5. Identify the nursing care given the patient during the first stage of labor.

2-6. Select the signs of the second stage of labor.

2-7. Identify those parameters used to determine when the patient is taken to the delivery room.

2-8. Identify the nursing care given the patient while in the delivery room.

2-9. Identify signs of placental separation.

2-9. Select the nursing interventions used during the third stage of labor.

2-11. Select the goal of the fourth stage of labor.

2-12. Identify the nursing care given the patient during the fourth stage of labor.

2-13. Identify those factors which may extend or influence the duration of labor.

SUGGESTION: After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 2

STAGES OF LABOR AND NURSING CARE

Section I. OVERVIEW

2-1. GENERAL

a. The goal of any mother and health care team is the successful, uncomplicated birth of a new infant. Your understanding of the process of labor and what it entails will allow you to provide adequate comfort measures to the patient and to assist her through this long awaited event. Although much pain or discomfort may be experienced by the mother and those concerned, labor and delivery of an infant is an eventful time after a long nine months of pregnancy.

b. Labor is defined as the onset of rhythmic contractions and the relaxation of the uterine smooth muscles which results in effacement or progressive thinning of the cervix, and dilation or widening of the cervix (see figure 2-1). This process culminates with the expulsion of the fetus and expulsion of the other products of conception (placenta and membranes) from the uterus.

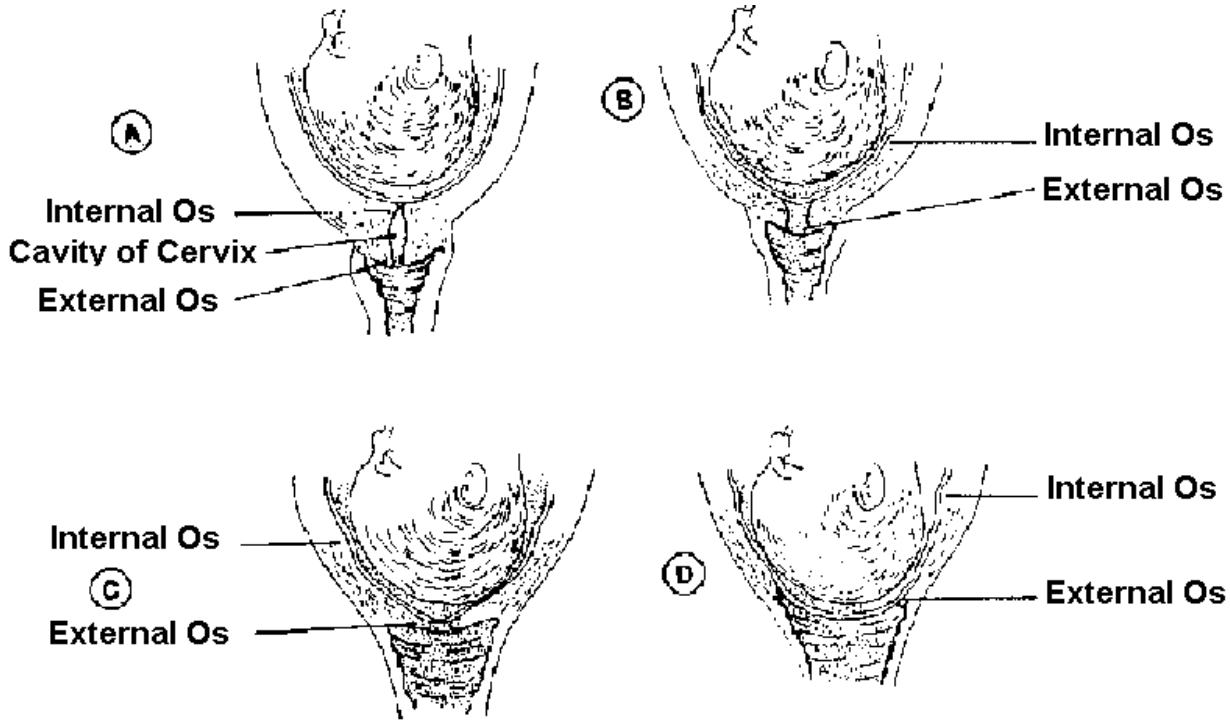


Figure 2-1. Stages of effacement and dilatation.

2-2. TRUE LABOR VS FALSE LABOR

Many women often experience "false labor" before "true labor" actually begins. False contractions may begin as early as three or four weeks before the termination pregnancy. Contractions, show, the cervix, and fetal movement all are vital in distinguishing between true and false labor (see Table 2-1).

FACTOR	TRUE LABOR	FALSE LABOR
Contractions	Produce progressive dilation and effacement of the cervix. Occur regularly and increase in frequency, duration, and intensity.	Do not produce progressive dilatation and effacement. Are irregular and do not increase in frequency, duration, and intensity.
Show	Is present.	Not present. May have brownish discharge that may be from vaginal exam if within the last 48 hours.
Cervix	Becomes effaced and dilates progressively.	Usually uneffaced and closed.
Fetal Movement	No significant change, even though fetus continues to move.	May intensify for a short period or it may remain the same.

Table 2-1. True verses false labor.

a. **Contractions**.

(1) True labor. The contractions of true labor produce progressive dilatation and enfacement of the cervix. These contractions occur regularly and increase in frequency, duration, and intensity. The discomfort of true labor contractions usually starts in the back and radiates around to the abdomen and is not relieved by walking.

(2) False labor. False labor contractions are referred to as Braxton Hicks contractions. They do not produce progressive cervical effacement and dilatation. They are irregular and do not increase in frequency, duration, and intensity. Discomfort is located chiefly in the lower abdomen and groin area. Walking often offers relief.

b. **Show**. This is another sign of impending labor. After the discharge of the mucous plug that has filled the cervical canal during pregnancy, the pressure of the descending presenting part of the fetus causes the minute capillaries in the cervix to rupture. This blood is mixed with mucus and therefore has a pink tinge.

(1) True labor. Show is usually present in true labor. There will be pinkish mucus or a bloody discharge. This mucus or discharge may also be from the mucous plug from the cervix.

(2) False labor. Show is not present in false labor. However, the mother may have an old, brownish discharge especially if she had a vaginal exam within the last 48 hours.

c. **Cervix**.

(1) True labor. In true labor, the cervix becomes effaced and dilates progressively. This change can be identified within an hour or two.

(2) False labor. In false labor, the cervix is usually un-effaced and closed. There is no change identified if the cervix is rechecked in an hour or two.

d. **Fetal Movement**.

(1) True labor. There is no significant change in fetal movement even though the fetal continues to move.

(2) False labor. Fetal movement may intensify for a short period or it may remain the same.

2-3. OVERVIEW OF THE LABOR PROCESS-FOUR STAGES

a. **First Stage of Labor**. The first stage of labor is referred to as the "dilating" stage. It is the period from the first true labor contractions to complete dilatation of the cervix (10cm) (see figure 2-2). The forces involved are uterine contractions. The first stage of labor is divided into three phases:

(1) Latent (early) or prodromal.

(2) Active or accelerated.

(3) Transient or transitional.

b. **Second Stage of Labor**. The second stage of labor is referred to as the "delivery or expulsive" stage. This is the period from complete dilatation of the cervix to birth of the baby. The forces involved are uterine contractions plus intra-abdominal pressure.

c. **Third Stage of Labor**. The third stage of labor is referred to as the "placental" stage. This is the period from birth of the baby until delivery of the placenta. The forces involved are uterine contractions and intra-abdominal pressure.

d. **Fourth Stage of Labor**. The fourth stage of labor is referred to as the "recovery or stabilization" stage. This period begins with the delivery of the placenta and ends when the uterus no longer tends to relax. The forces involved are uterine contractions

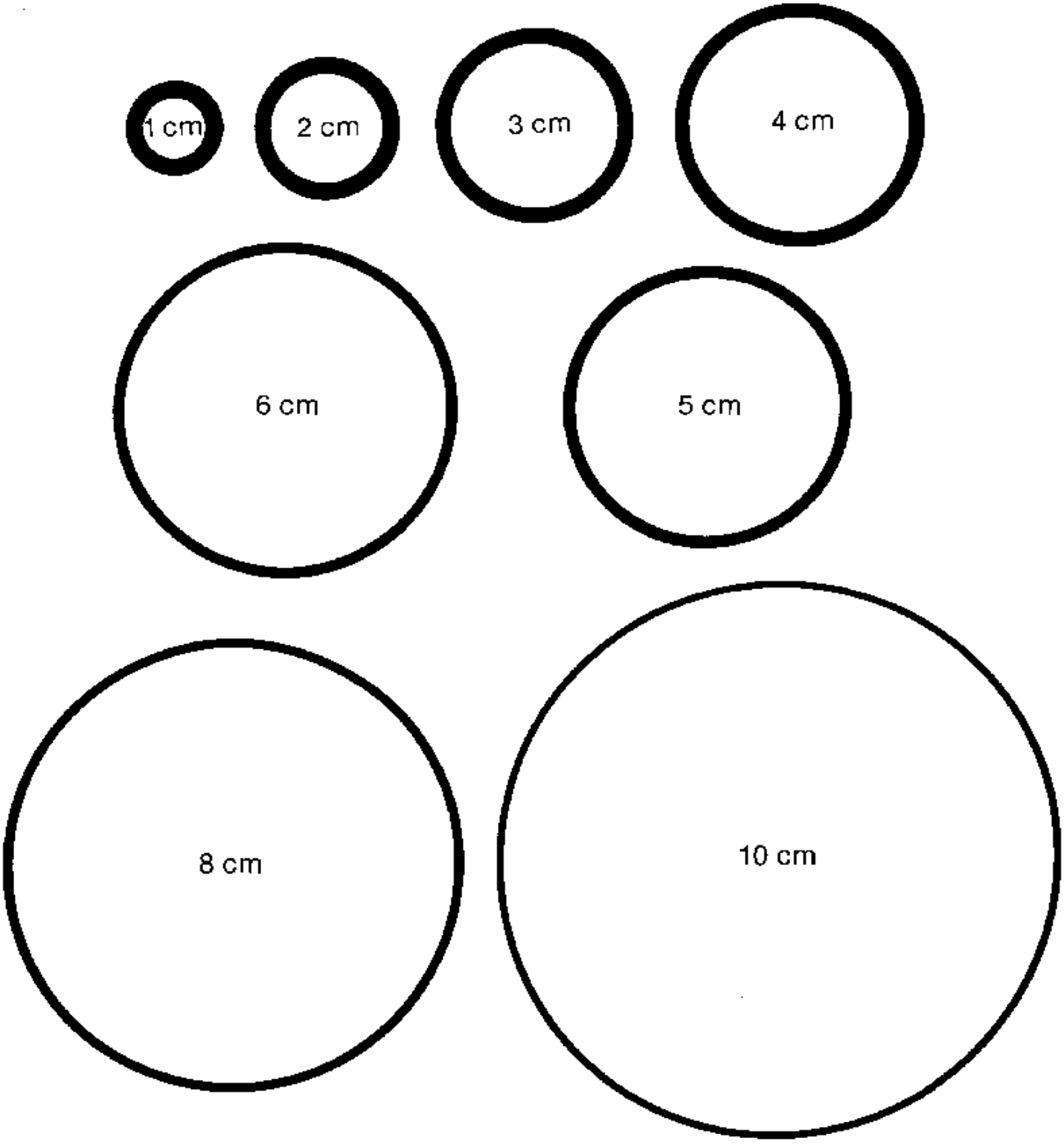


Figure 2-2. Cervical dilatations.

Section II. FIRST STAGE OF LABOR

2-4. FIRST STAGE OF LABOR--THREE PHASES

a. **Latent or Prodromal Phase (Early)**. In this phase, the mother feels slow, rhythmic contractions radiating from the lumbar region to the anterior portion of her abdomen. The contractions last from 30 to 45 seconds with the intensity gradually increasing. The frequency of contractions is from 5 to 20 minutes. There is some cervical effacement. Dilation is from 0 to 3 cm. "Bloody show" is usually present. The mother is usually able to walk, talk, or laugh some during this phase. Diversion is usually welcomed during this time. This phase may not be included as part of the first stage of labor since it is before the onset of true labor. True labor is considered to be at 4 cm. Duration of this phase varies, sometimes as long as 24 hours and is referred to as the "prolonged latent" phase. The mother may sometimes make some progress dilating from 1 to 2 cm and will then stop. She is usually not admitted to the hospital at this point unless the membranes are ruptured.

b. **Active or Accelerated Phase**. In this phase, the contractions become stronger and last longer, usually 45 to 60 seconds. The frequency is from 3 to 5 minutes. The cervix dilates from 4 to 7 cm. This phase is considered the onset of true labor. The mother is admitted to the hospital at this point. She, then, becomes involved with bodily sensations and tends to withdraw from the surrounding environment. She is not able to walk, but, desires companionship and encouragement.

c. **Transient or Transitional Phase**. In this phase, the contractions are sharp, more intensified, and last from 60 to 90 seconds. The frequency is from 2 to 3 minutes. The cervix dilates from 8 to 10 cm. Completion of this phase marks the end of the first stage of labor. The mother may express feelings of frustration, loss of control, and/or irritability. Her focus becomes internal. She has difficulty comprehending surroundings, events, and instructions. There is an increase in bloody show as a result of the rupture of capillary vessels in the cervix and the lower uterine segment. The mother feels an urge to push or to have a bowel movement. This is considered the most severe and difficult phase for the mother.

2-5. NURSING CARE DURING THE FIRST STAGE OF LABOR

a. **Hospital Admission**. After a physician or nurse has evaluated the patient, an admission order is written. At this point, your duties as a practical nurse are as follows:

(1) Establish a rapport with the patient and significant others.

(2) Explain all procedures or routines, which will be carried out prior to performing them. These include:

(a) NPO except ice chips while in labor.

(b) Activities allowed and disallowed according to ward policies (i.e. bathroom privileges).

(c) Use of fetal monitors.

(d) Progress reports.

(e) Visitation policies.

(f) Where patient's personal belongings will be maintained.

(3) Orient the patient to the surroundings (that is, room, call bell).

(4) Initiate the patient's labor chart.

(5) Review the information obtained originally in the exam room, verify and transfer the OB health record to the labor chart per ward policies. You will review the following information:

(a) Obstetric history.

1 Gravida/para.

2 Estimated date of confinement (EDC) or due date.

3 Duration of previous labors.

4 Problems with previous pregnancies/deliveries.

(b) General condition.

1 Rh status.

2 Allergies.

3 History of medical problems.

(c) Current pregnancy.

1 Onset of labor (contractions regular, 5 minutes or less).

2 Frequency, duration, and intensity of contractions.

3 Membranes-ruptured or intact.

4 Amount and character of show or vaginal bleeding.

5 Vital signs.

6 Rate, location of fetal heart tones.

7 Plans to bottle or breast feed.

8 Any problems with this pregnancy.

(6) Evaluate the patient's current emotional status.

(7) Evaluate the patient's preparation for labor through classes.

(8) Evaluate for possible danger signs.

(a) Increased pulse or temperature.

(b) Excessive vaginal bleeding.

(c) Presence of meconium (fetal feces) in the amniotic fluid of a mother with a vertex position.

(d) Alteration in fetal heart tones (FHT's) above 160 or below 120.

(e) Obvious change in the character of uterine contractions.

(9) Perform the admission physician's orders to include but not limited to the following:

(a) Administer and maintain intravenous fluids--per physician's order and SOP. This is usually done on all patients.

(b) Draw lab work--CBC, serologic testing, type and screen, or per SOP.

(c) Send uterine activity (UA) which was obtained prior to admission to the lab.

b. **Perineal Preparation**. Shaving of pubic hair to prevent infection of perineal episiotomy/lacerations is rarely done anymore. There must be a physician's order to perform this task.

c. **Cleansing Enema**.

(1) A cleansing enema may range from "mini-" or "Fleets" to a full, soap-suds enema. Giving an enema is no longer considered routine. There must be a physician's order to perform this task.

(2) The patient must be evaluated to determine if she has had a recent bowel movement.

(3) If a cleansing enema is given, it is usually a small fleet.

(4) Some physicians consider giving fleets to:

(a) Prevent fecal contamination of the perineum during delivery.

(b) Cleanse the bowel. This provides more room for fetal passage.

(c) Stimulate uterine contractions.

(5) Some physicians consider <u>not</u> giving fleets because the following factors may be present or begin:

(a) Vaginal bleeding.

(b) Premature labor.

(c) Presenting part not engaged.

(d) Abnormal presentation--breech or transverse.

(e) Already rapid moving labor.

(f) Advanced labor.

(g) Membranes are ruptured or danger of prolapsed cord.

(h) Results of enema may produce unmanageable amounts of loose stool at delivery.

d. **Evaluation of Uterine Contractions Continued**.

(1) The purpose of this evaluation is to assess the ability of the uterus to dilate the cervix, help in determining the progress of labor, help to detect abnormalities of uterine contractions (such as lack of uterine relaxation), and help to evaluate any signs of fetal distress.

(2) This evaluation will help you in identifying the frequency (how often in minutes contractions occur), intensity (strength of contractions when palpitations are identified as mild, moderate, or strong [severe]), and duration (how long the contractions lasts in seconds).

(3) When palpating for contractions, place your hand over the fundal area of the patient's uterus. Contractions can be felt by your fingers before the patient actually becomes aware of them. See figure 2-3 for patient experiencing contractions.

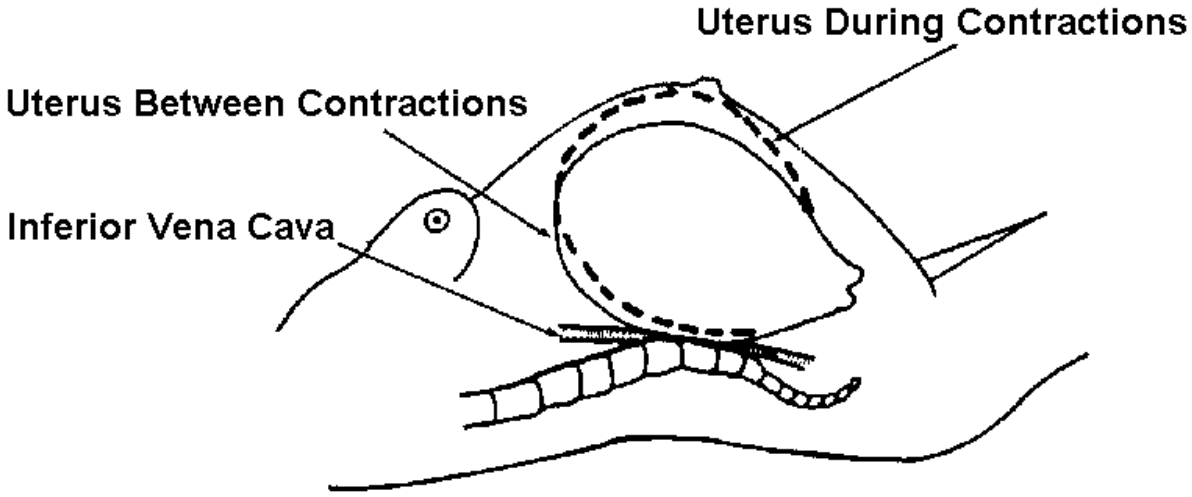


Figure 2-3. Uterus between and during contractions.

e. **Monitoring and Recording Color and Amount of Show**. As labor progresses, the show becomes more blood-tinged. A sharp increase in the amount of bloody show coupled with frequent severe contractions may indicate labor is progressing too rapidly. Report this immediately to the Charge Nurse or physician and be prepared for possible delivery.

f. **Fetal Monitoring**.

(1) Fetal monitoring is done to detect presence of fetal life at time of admission and to detect development of fetal distress during labor. A fetoscope or fetal monitor may be used to obtain FHTs. Normal fetal heart rate ranges from 120 to 160 beats per minute (BPM). The rate may increase or decrease by 30 BPM during a contraction. It should return to the baseline immediately after the contraction. A continued fetal heart rate of greater than or less than 30 BPM from the normal baseline after contractions may be indicative of fetal distress as defined by:

(a) Fetal tachycardia--FHTs sustained at greater than 160 BPM.

(b) Fetal bradycardia--FHTs sustained at less than 120 BPM.

(2) Fetal distress may be indicated by FHT's, between contractions that are consistently abnormal. Any variations should be reported immediately.

(3) The FHTs should be checked and recorded on admission, every 15 minutes during the first stage of labor, every 5 minutes during the second stage of labor, and immediately after rupture of membranes. This helps to identify the location of the prolapsed cord.

NOTE: The prolapsed cord is referred to as the umbilical cord that protrudes beside or ahead of the presenting part of the fetus. Pressure of the presenting part on the umbilical cord can endanger fetal circulation.

(4) Fetal monitoring continued. According to the National Institute of Health (NIH), electronic fetal monitoring of the fetus is not necessary during normal labor. However, if either the mother or fetus is considered at risk, a more precise measurement of fetal response is indicated.

(5) Candidates for continuous fetal monitoring includes a patient with a multiple pregnancy, a patient with obstetric complications, a patient receiving oxytocin infusions, any high risk patient, a patient with meconium stained amniotic fluid, or any patient whose pregnancy is not progressing normally.

(6) Most medical facilities are using continuous fetal monitoring during labor. Alternative birth centers often use intermittent monitoring.

(7) Methods of fetal monitoring (see figures. 2-4 and 2-5). A transducer is placed on the abdomen over the uterus for external monitoring. An electrode is attached to the presenting part of the fetus, but NOT placed on the sutures, fontanels, face, or scrotum for internal monitoring.

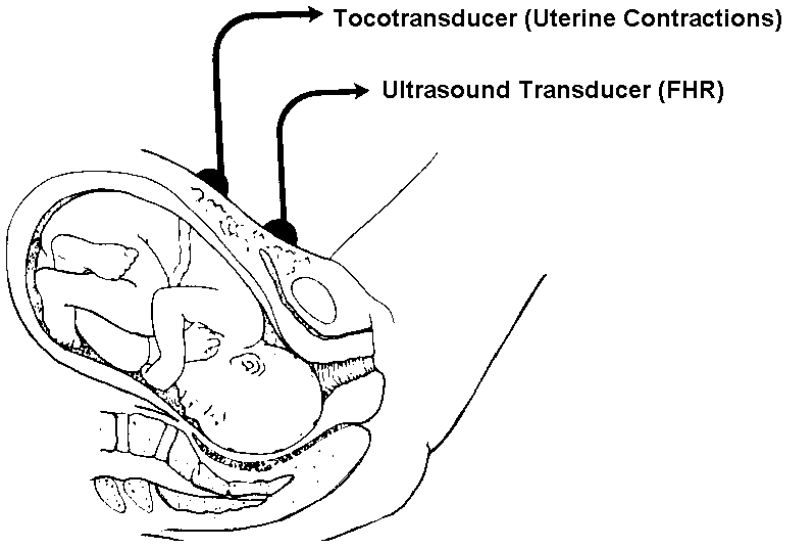


Figure 2-4. External fetal monitoring,

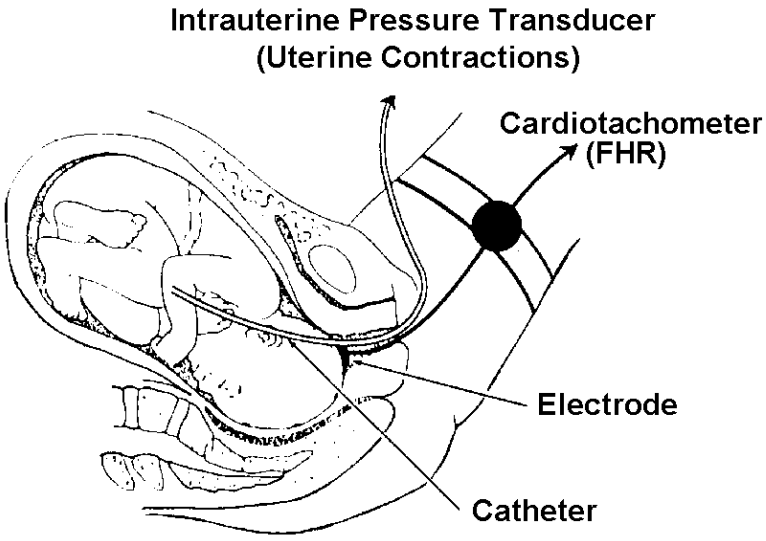


Figure 2-5. Internal fetal monitoring.

g. **Vital Signs**. Monitor the patient's vital signs.

(1) On admission.

(2) Every hour during early labor.

(3) Blood pressure (BP), pulse (P), and respiratory rate (R) every 30 minutes during active, transition, and the second stage of labor, to include the temperature every hour.

(4) Blood pressure, P, and R every 15 minutes while on Pitocin®, to include the temperature every hour.

(5) More frequently if complications arise.

h. **Patient Given an Opportunity to Void**. You should offer the patient an opportunity to void every 2 hours during labor. The discomfort of contractions often causes the patient to be unaware that her bladder is full. A full bladder may impede the progress of labor.

i. **Patient is NPO During Labor**. The patient may have ice chips to prevent drying and chapping of the lips. Vaseline may be applied to her lips to prevent chapping. Gastric emptying time is prolonged once labor is established. The administration of analgesics also prolongs gastric emptying. The patient may vomit and aspirate since her stomach contents may not be absorbed. Being unaware of when possible complications could arise could necessitate an emergency C-section with general anesthesia.

j. **Positioning During Labor**. Assist the patient in turning from side to side. Elevate the head of the bed 30 degrees; this makes it easier for the patient to breathe. Try to keep the patient off her back to prevent supine hypotensive syndrome. This syndrome results in pressure of the enlarged uterus on the vena cava, reduces blood supply to the heart, decreases blood pressure, and reduces blood circulation to the uterus and across the placenta to the fetus. The patient may complain of being nauseated and feeling cool and clammy. The best position for the patient is on her left side since this increases fetal circulation.

k. **Prevention of Infection**. Handwashing is essential before and after performing any procedure. Fresh, clean scrub suits should be worn in the delivery area. Unauthorized persons should not be allowed in the area. A patient with infections should be separated from other patients.

l. **Vaginal Exams**. Only the physician or a trained nurse performs this exam. It is done to evaluate cervical effacement, cervical dilatation, status of membranes, and station of presenting part. Care must be taken to perform good perineal cleansing before and after the procedure (vaginal exam). Once membranes rupture, the exam should be limited even further to prevent the risk of infection. See figure 2-6 for vaginal palpation of cervical dilatation, effacement, amniotic membranes, and presenting part.

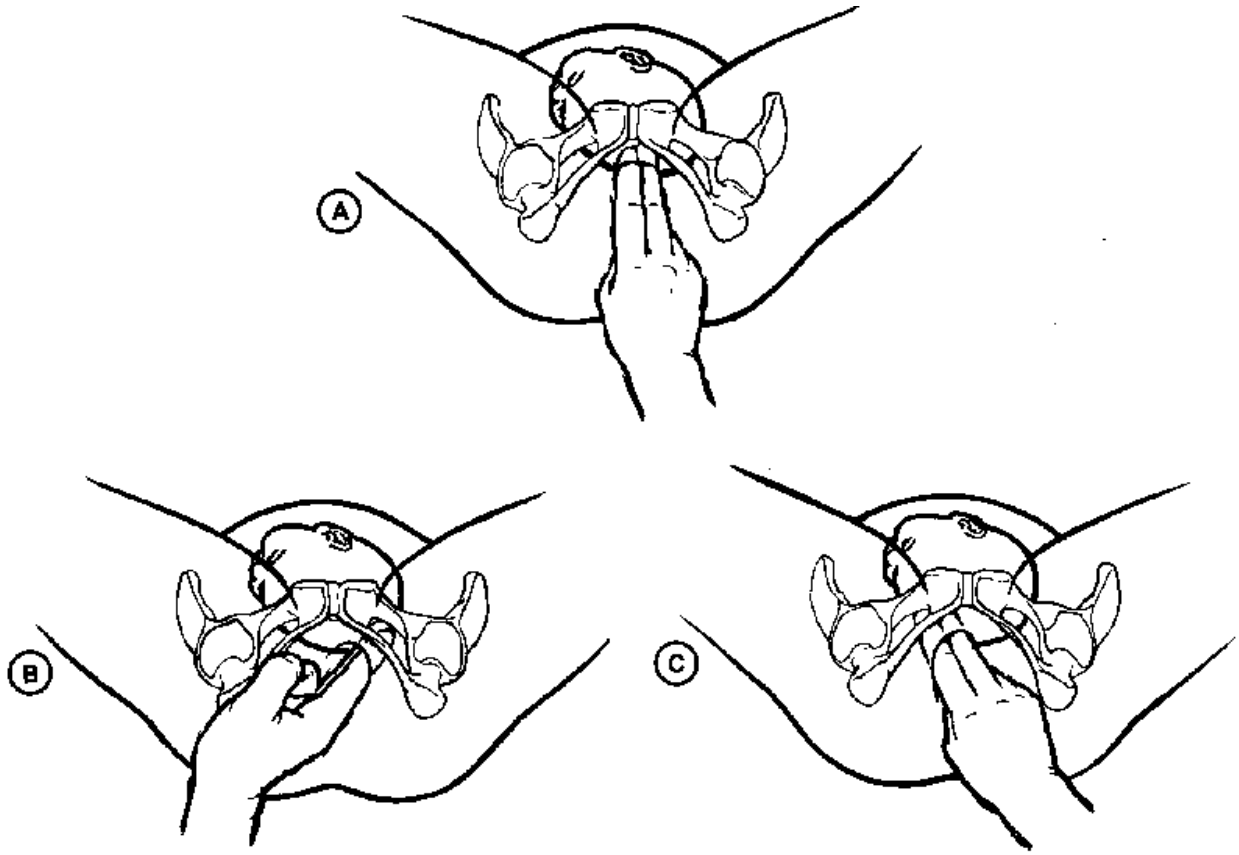


Figure 2-6. Vaginal exam.

m. **Artificial Rupture of Membranes**.

(1) Rupture of the membranes is done by the physician to induce or hasten labor. Apply an internal fetal monitor lead or a uterine catheter.

(2) The FHTs should be checked immediately following rupture. Determining fetal distress is secondary to compression of the cord. The cord may be displaced by the sudden "gush" of waters, which may yield a prolapsed cord.

(3) Fluids should be carefully examined for meconium if the fetus is in the vertex presentation, (that is, head first). You should check for:

(a) Slight green color--called light meconium.

(b) Green to dark color--called moderate meconium.

(c) Dark green with chucks of meconium--called heavy meconium.

(4) Record the following information:

(a) Time of the procedure (rupture of membranes).

(b) Amount of fluid expelled (small, moderate, or large).

(c) Color--clear or meconium stained (extent of staining--light, moderate, or heavy).

(d) Fetal heart rate immediately after the procedure and five minutes after the procedure.

(e) Instrument used, if other than an amnihood, to provide a slow, controlled release of fluid. Other instruments may be a fetal scalp electrode or spinal needle.

NOTE: The amnihood is used to tear a small opening in the amniotic sac.

n. **Emotional Support**.

(1) First phase--laten. Offer support and explanations. Instruct or reinforce breathing techniques (breathe slowly and deeply and use deep chest or abdominal breathing). Remind the patient to not push down during the **first stage** since it could causes cervical edema. It could also cause cervical lacerations and fetal hypoxia.

(2) Second phase--active. Continue to give support, offer encouragement, and give explanations. Include significant other in these procedures. Reinforce breathing and relaxation techniques. Accelerated shallow panting may be used, and also, effleurage (stroking movement used in massage, usually of the abdomen).

(3) Third phase--transition. Encouragement is especially important now since the patient is most likely losing control at this point. She may be nauseated or flushed and may vomit. Assist the patient to turn on her side or to sit up to prevent aspiration. Wipe her face and mouth with a cool cloth. **Be aware that the patient may want to be left alone, but don't leave; stay and support her**. Remind the patient that this is the shortest stage and that the baby will be born soon. Encourage her to concentrate on relaxation and breathing techniques. Use more intensive breathing techniques (high chest, pant-blow). Make sure to give instructions in short, simple phrases. Remind the patient that she still can't push even though she may have a strong urge to do so.

o. **Preparation of the Delivery Room**. Preparation is usually done by the paraprofessional on duty if the scrub technicians are not employed. Strict aseptic technique is maintained. The room is prepared while the patient is in the first stage of labor. The local SOP will determine how soon before anticipated delivery the room can be set up. It is usually 2 to 12 hours if the tables are covered and rooms are closed.

Section III. SECOND STAGE OF LABOR (DELIVERY STAGE)

2-6. SECOND STAGE OF LABOR

As previously mentioned, the second stage of labor begins when the cervix is completely effaced and dilated and ends when the infant is born.

a. These signs of the second stage of labor are considered imminent or impending signs.

(1) Imminent signs.

(a) Increased bloody show.

(b) Desire to bear down or have bowel movement (result of the descent of the presenting part).

(c) Bulging of the perineum.

(d) Dilatation of the anal orifice.

(2) Impending signs.

(a) Nausea and retching.

(b) Irritability and uncooperativeness.

(c) Complaints of severe discomfort.

(d) Pleas for relief.

b. Once dilatation and effacement are complete, the patient is instructed to push with each contraction to bring the presenting part down into the pelvis.

2-7. TRANSFER OF THE LABOR PATIENT TO THE DELIVERY ROOM

Transfer the mother to the delivery room and prepare her for delivery when delivery seems imminent. Timing is dependent on the parity of the patient, size of the infant, effectiveness of the patient's pushes, arrival of the physician, familiarity of the staff with equipment, and need for additional preparation time. Parity refers to the condition of the woman with respect to her having borne children.

a. Primigravida patients are transferred when the cervix is completely effaced and dilated and the head or presenting part is crowning.

b. Multipara patients are transferred when the cervix is completely effaced and dilated. The patient usually pushes (i.e., bears down) in the delivery room. She may be transferred prior to complete dilatation (8 to 9 cm) if she is progressing rapidly and the presenting part is descending. These patients are normally not encouraged to push when in the labor room since delivery occurs more rapidly in the multipara patient.

2-8. NURSING CARE GIVEN WHILE IN THE DELIVERY ROOM

a. Never leave the patient alone once she has been transferred to the delivery room. In addition, never turn your back on the perineum because the baby could push through the vaginal opening while your back is turned.

b. Encourage the patient to rest between contractions and to push with contractions. Only one person should coach. Verbal encouragement and physical contact help reassure and encourage the patient.

c. Position the patient's legs in the stirrups for the lithotomy position. This is the most common position for delivery. Facilities using birthing beds have the patient in an upright position. Positioning also depends upon the type of anesthesia to be used and C-section delivery. Each case may be different.

d. Prep the patient's perineum. A Betadine® scrub and water are used with 4x4's. Clean the perineum by washing the pubic area, down each thigh, down each side of the labia, down the perineum, and down the rectal area (see fig. 2-7). Begin cleaning at number 1 and proceed through number 7. **Discard used sponges after each step**. Rinse area with the remaining solution.

e. Monitor the patient's blood pressure and the fetal heart tones every 5 minutes and after each contraction.

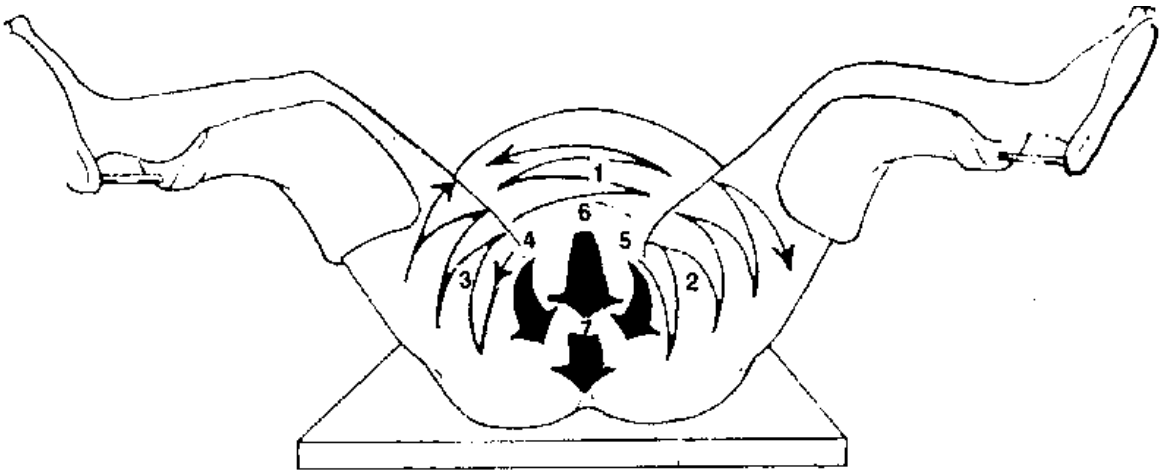


Figure 2-7. Cleaning the patient's perineum.

2-9. NORMAL BIRTHING PROCESS (FIGURE 2-8)

Even though most of the time the delivery remains in the hands of the obstetrician, there may be times when a practical nurse will have to assist the patient to give birth. In general, the activity of the normal birthing process (see figure 2-8) is given below:

a. Crowning, the appearance of the infant's head on the perineum.

b. Delivery of the head. This includes suctioning of the infants nose and mouth with a bulb syringe. A DeLee suction trap is used if meconium is present.

c. Delivery of the anterior shoulder and the posterior shoulder.

d. Delivery of the trunk and lower body.

e. Clamping and cutting of the umbilical cord.

2-10. INFORMATION TO BE RECORDED ABOUT THE DELIVERY

Record the following information.

a. Exact date and time of delivery.

b. Sex of the infant.

c. Condition of the infant (APGAR) after birth. APGAR is the most widely used method of evaluating the condition of a newborn baby. A value of 0 to 2 is given for each observation (i.e., heart rate, respiratory effort, muscle tone, reflex irritability, and color). The values are added giving a total APGAR score (see table 2-2). A baby in

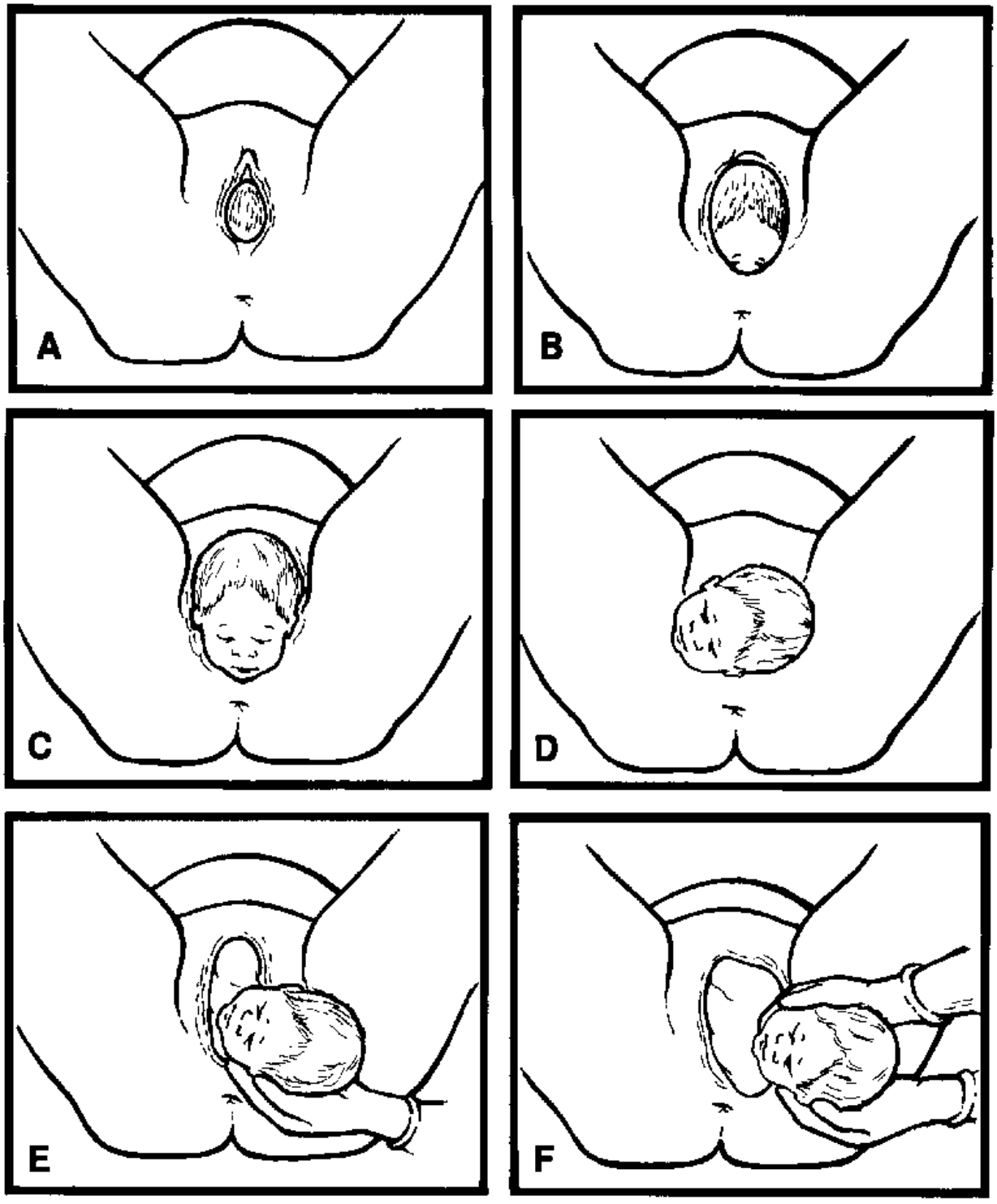


Figure 2-8. Birthing process (continued).

Figure 2-8. Birthing process (continued).

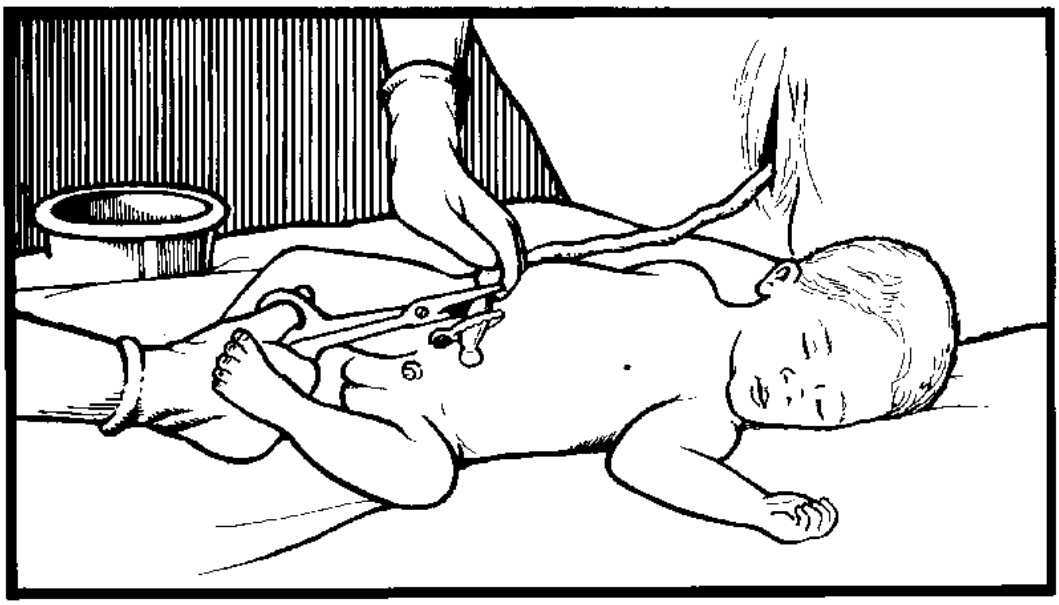


Figure 2-8. Birthing process (concluded).

excellent condition would score 9 to 10 and a dead baby would score 0. Most babies score 7 or better. The condition of the infant will be taken at one (1) minute, at five (5) minutes, and at thirty (30) minutes.

d. Position of the infant at delivery.

e. Type of episiotomy, lacerations.

f. Spontaneous or forceps delivery.

g. Use of oxygen and suction on the infant.

h. Number of vessels in the cord.

i. Mother's name.

j. Any other pertinent facts about the delivery.

SIGN						
	0	1	2	1 min	5 min	30 min
Heart Rate	Absent	Less Than 100	Over 100			
Respiratory Effort	Absent	Slow Irregular	Good Cry			
Muscle Tone	Limp	Some Flexion	Active Motion			
Reflex Irritability	No Response	Grimace	Cry			
Color	Pale	Body Pink Extr. Blue	All Pink			
TOTAL SCORE						

Table 2-2. Sample APGAR scoring chart.

Section IV. THIRD STAGE OF LABOR (PLACENTAL STAGE)

2-11. THIRD STAGE OF LABOR

As previously mentioned, the third stage of labor is the period from birth of the baby through delivery of the placenta. This is considered a dangerous time because of the possibility of hemorrhaging. Signs of the placental separation (see figure 2-9) are as follows:

a. The uterus becomes globular in shape and firmer.

b. The uterus rises in the abdomen.

c. The umbilical cord descends three (3) inches or more further out of the vagina.

d. Sudden gush of blood.

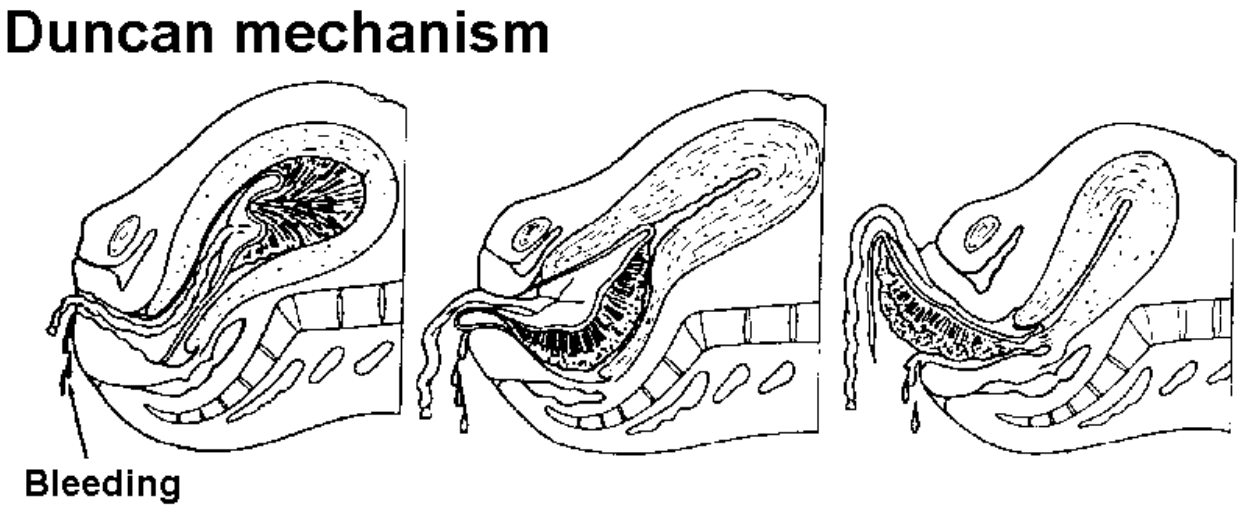


Figure 2-9. Placental separation and delivery.

2-12. NURSING CARE DURING THE THIRD STAGE

a. Continue observation. Following delivery of the placenta, continue in your observation of the fundus. Ensure that the fundus remains contracted. Retention of the tissues in the uterus can lead to uterine atony and cause hemorrhage. Massaging the fundus gently will ensure that it remains contracted.

b. Allow the mother to bond with the infant. Show the infant to the mother and allow her to hold the infant.

2-13. INFORMATION TO RECORD

Record the following information.

a. Time the placenta is delivered.

b. How delivered (spontaneously or manually removed by the physician).

c. Type, amount, time and route of administration of oxytocin. Oxytocin is never administered prior to delivery of the placenta because the strong uterine contractions could harm the fetus.

d. If the placenta is delivered complete and intact or in fragments.

Section V. FOURTH STAGE OF LABOR (RECOVERY STAGE)

2-14. FOURTH STAGE OF LABOR

The fourth stage of labor, as previously mentioned, is the period from the delivery of the placenta until the uterus remains firm on its own. In this stabilization phase, the uterus makes its initial readjustment to the nonpregnant state. The primary goal is to prevent hemorrhage from the uterine atony and the cervical or vaginal lacerations.

NOTE: Atony is the lack of normal muscle tone. Uterine atony is failure of the uterus to contract.

2-15. NURSING CARE DURING THE FOURTH STAGE OF LABOR

a. Transfer the patient from the delivery table. Remove the drapes and soiled linen. Remove both legs from the stirrups at the same time and then lower both legs down at the same time to prevent cramping. Assist the patient to move from the table to the bed.

b. Provide care of the perineum. An ice pack may be applied to the perineum to reduce swelling from episiotomy especially if a fourth degree tear has occurred and to reduce swelling from manual manipulation of the perineum during labor from all the exams. Apply a clean perineal pad between the legs.

c. Transfer the patient to the recovery room. This will be done after you place a clean gown on the patient, obtained a complete set of vital signs, evaluated the fundal height and firmness, and evaluated the lochia.

d. Ensure emergency equipment is available in the recovery room for possible complications.

(1) Suction and oxygen in case patient becomes eclamptic.

(2) Pitocin® is available in the event of hemorrhage.

(3) IV remains patent for possible use if complications develop.

e. Check the fundus.

(1) Ensure the fundus remains firm.

(2) Massage the fundus until it is firm if the uterus should relax (see figure 2-10).

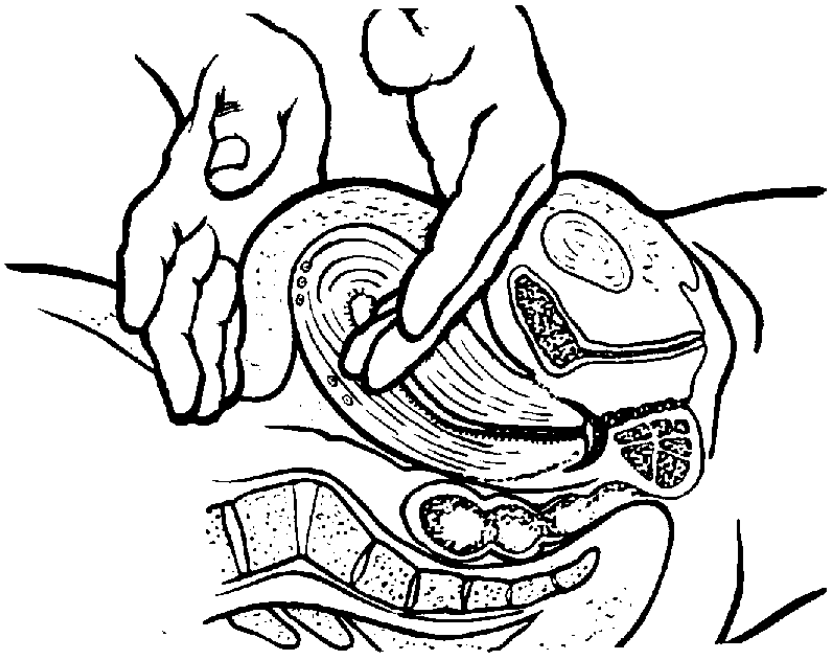


Figure 2-10. Massaging the fundus.

(3) Massage the fundus every 15 minutes during the first hour, every 30 minutes during the next hour, and then, every hour until the patient is ready for transfer.

(4) Chart fundal height. Evaluate from the umbilicus using fingerbreadths. This is recorded as two fingers below the umbilicus (U/2), one finger above the umbilicus (1/U), and so forth. The fundus should remain in the midline. If it deviates from the middle, identify this and evaluate for distended bladder.

(5) Inform the Charge Nurse or physician if the fundus remains boggy after being massaged.

NOTE: A boggy uterus many indicate uterine atony or retained placental fragments. Boggy refers to being inadequately contracted and having a spongy rather than firm feeling. This is descriptive of the postdelivery of the uterus.

f. Monitor lochia flow. Lochia is the maternal discharge of blood, mucus, and tissue from the uterus. This may last for several weeks after birth.

(1) Keep a pad count. Record the number of pads soaked with lochia during recovery.

(2) Identify presence of bright red bleeding or blood clots.

(3) Document thick, foul-smelling lochia.

(4) Observe for constant trickle of bright red lochia. This may indicate lacerations.

(5) Identify lochia amounts as small, moderate, or heavy (large) (see figure 2-11).

(6) Document lochia flow when the fundus is massaged.

(a) Every fifteen (15) minutes times one hour.

(b) Every thirty (30) minutes times one hour.

(c) Every hour until ready for transfer.

g. Observe the mother for chills. The cause of the mother being chilled following birth is unknown. However, it refers primarily to the result of circulatory changes after delivery. The best means of relief is to cover the mother with a warm blanket.

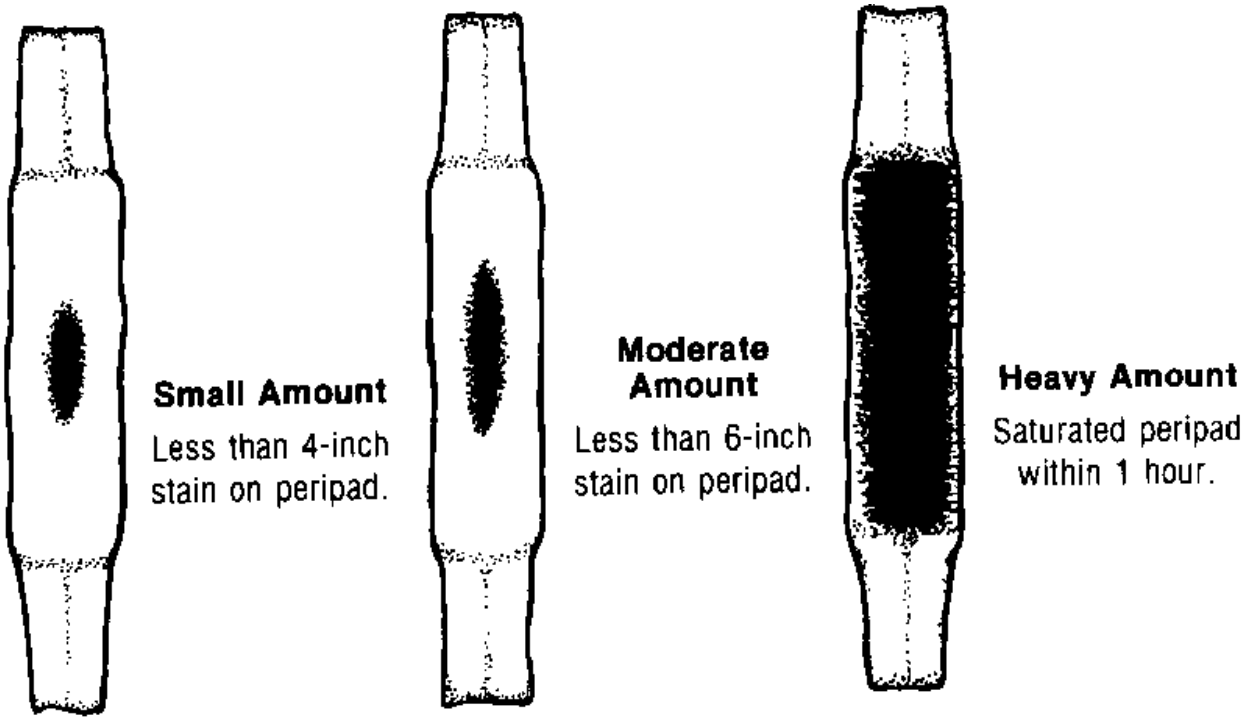


Figure 2-11. Assessing lochia flow.

h. Monitor the patient's vital signs and general condition.

(1) Take BP, P, and R every 15 minutes for an hour, then every 30 minutes for an hour, and then every hour as long as the patient is stable. Take the patient's temperature every hour.

(2) Observe for uterine atony or hemorrhage.

(3) Observe for any untoward effects from anesthesia.

(4) Orient the patient to the surroundings (bathroom, call bell, lights, etc.).

(5) Allow the patient time to rest.

(6) Encourage the patient to drink fluids.

i. Observe patient's urinary bladder for distention. Be able to recognize the difference between a full bladder and a fundus.

(1) Characteristics of a full bladder.

(a) Bulging of the lower abdomen (see figure 2-12).

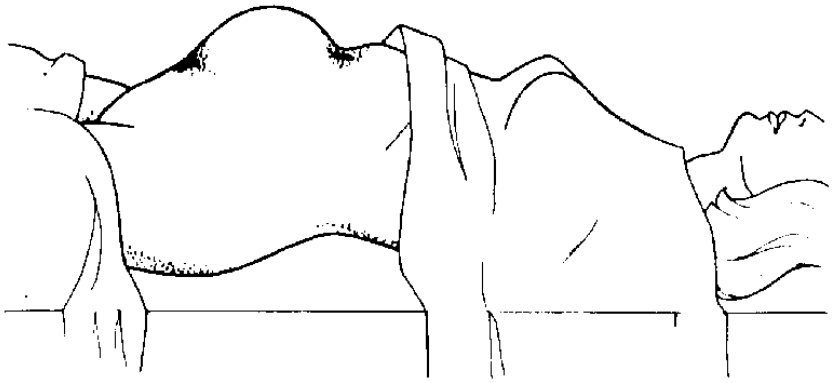


Figure 2-12. Bulging of the lower abdomen.

(b) Spongy feeling mass between the fundus and the pubis.

(c) Displaced uterus from the midline, usually to the right.

(d) Increased lochia flow.

(2) Full bladders may actually cause postpartum hemorrhage because it prevents the uterus from contracting appropriately.

(3) Nerve blocks may alter the sensation of a full bladder to the patient and prevent her from urinating.

(4) If at all possible, ambulate the patient to the bathroom.

(5) Urine output less than 300cc on initial void after delivery may suggest urinary retention.

(a) Document the fundal height and bladder status before the patient urinates.

(b) Reevaluate and document the fundal height and bladder status after the patient urinates to accurately document an empty bladder.

j. Evaluate the perineal area for signs of developing edema and/or hematoma.

(1) Predisposing conditions includes prolonged second stage, delivery of a large infant, rapid delivery, forceps delivery, and fourth degree lacerations.

(2) Nursing considerations for perineal edema.

(a) Apply an ice pack to the perineum as soon as possible to decrease the amount of developing edema.

(b) Stress the importance of peri-care and use of "sitz-baths" on the postpartum ward.

(c) Assess for urinary distention which is due to edema of the urethra.

(3) Assessment for perineal hematoma.

(a) Look for discoloration of the perineum.

(b) Listen for the patient's complaints or expression of severe perineal pain.

(c) Observe for edema of the area.

(d) Observe/listen for patient's feeling the need to defecate if forming hematoma is creating rectal pressure.

(e) Observe for patient's sensitivity of the area by touch (by sterile glove).

k. Observe for signs of hemorrhage.

(1) Uterine atony.

(2) Vaginal or cervical lacerations.

(3) Retained placental fragments.

(4) Bladder distention.

(5) Severe hematoma in vagina or surrounding perineum.

l. Assess for ambulatory stability.

(1) The patient is at risk of fainting on initial ambulation after delivery due to hypovolemia from blood loss at delivery and hypoglycemia from prolonged nothing by mouth (NPO) status.

(2) The patient should be accompanied on the first ambulation and observed for stability.

(3) Ammonia ampuls should be readily available.

(4) The patient should be closely monitored while in the bathroom to prevent injury if fainting does occur.

(5) The patient who received regional anesthesia at deliver (that is, pudendal block) should be assessed for possible loss of sensation in the lower extremities.

m. Observe C-section patients. Most C-section patients are still initially recovered in the recovery room. If not, monitor the patient as you would any patient in a recovery room immediately during post delivery. Include monitoring of the fundus and lochia flow. Times are consistent with the normal vaginal delivery patient.

n. Instruct the patient in the proper perineal care. The patient should use the peribottle after each void and bowel movement, wipe from front to back to avoid contamination, and apply the perineal pad from front to back.

o. Discontinue IV on a normal patient once she is stable and the physician has ordered removal.

p. Complete notes and transfer the stable patient to the ward (on normal vaginal delivery--others require physician clearance).

2-16. FACTORS THAT MAY EXTEND OR INFLUENCE THE DURATION OF LABOR--5 Ps

There are five essential factors that affect the process of labor and delivery. They are easily remembered as the five Ps (passenger, passage, powers, placenta, and psychology).

a. **Passenger (Fetus)**.

(1) Presentation of the fetus (breech, transverse).

(2) Position of the fetus (ROP, LOP).

(3) Size of the fetus.

b. **Passage (Birth Canal)**.

(1) Parity of the woman, if she has ever delivered before.

(2) Resistance of the soft tissues as the fetus passes through the birth canal.

(3) Fetopelvic diameters.

c. **Powers (Contractions)**.

(1) Force of the uterine contractions.

(2) Frequency of the uterine contractions.

d. **Placenta**.

(1) Site of implantation.

(2) Whether it covers part of the cervical os.

e. **Psychology (Psychological State of the Woman)**.

(a) Patient extremely anxious.

(b) Emotional factors related to the patient.

(c) Amount of sedation required for the patient.

Continue with Exercises

EXERCISES, LESSON 2

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. What are the main factors involved in distinguishing between true and false labor?

   _____ _____

   _____ _____

2. Complete dilatation of the cervix is considered _____ cm.

3. There are forces involved when the cervix is dilating. These forces are called:

   _____

4. There are four stages involved in the labor process. Each stage is referred to with different events. Fill in the blanks identifying each event.

   First stage - _____

   Second stage - _____

   Third stage - _____

   Fourth stage - _____

5. The first stage of labor is categorized with three phases. They are:

   _____

   _____

   _____

Special Instructions for exercises 6 through 18. Indicate whether the following statements/phrases are true or false by circling the "**T**" for true and "**F**" for false.

6.	A cleansing enema is always given to the patient when she is in labor.	T	F
7.	Normal fetal heart rate ranges from 120 to 160 beats per minute.	T	F
8.	Rupture of the membranes is performed by the physician to induce or hasten labor.	T	F
9.	The primigravida patient is transferred to the delivery room when her cervix is completely effaced and dilated and the head or presenting part is crowning.	T	F
10.	The multipara patient is transferred to the delivery room when her cervix is completely effaced and dilated.	T	F
11.	A patient who has been transferred to the delivery room can be left alone for 2 minutes.	T	F
12.	APGAR is a method used for evaluating the condition of a newborn baby.	T	F
13.	Oxytocin can be administered prior to delivery of the placenta.	T	F
14.	A boggy uterus may indicate uterine atony or retained placental fragments.	T	F
15.	The contractions of true labor produce progressive dilation and effacement of the cervix.	T	F
16.	Show is present in false labor.	T	F
17.	The fetus heart may increase or decrease by 40 BPM during a contraction.	T	F
18.	A high risk patient is a candidate for continuous fetal monitoring.	T	F

19. Complete the chart below to indicate what happens during each factor to identify true and false labor.

FACTOR	TRUE LABOR	FALSE LABOR
Contractions	.	
Show		
Cervix		
Fetal Movement		

20. In which phase of the first stage of labor does the contractions become stronger and last longer, usually 45 to 60 seconds?

_____

21. In which phase of the first stage of labor does contractions become sharp, are more intensified, and last from 60 to 90 seconds?

_____

22. What are the reasons some physicians consider giving fleets?

_____

_____

_____

23. Where should you, the practical nurse, place your hands when you are palpating the patient's contractions?

_____

24. Why is fetal monitoring performed?

_____

_____

25. The patient being nauseated and retching, irritable and uncooperative, complains of severe discomfort, and pleas for relief are all impending signs of labor during which stage of labor?

_____

26. What nursing care is performed in the delivery room?

_____

_____

_____

_____

_____

27. The activity of the normal birthing process includes:

_____

_____

_____

_____

_____

28. Information to be recorded about the delivery includes:

_____

_____

_____

_____

_____

_____

29. What are the characteristics of a full bladder after delivery?

_____

_____

_____

_____

30. What nursing care is performed to the patient after delivery? List 8 of the 16 tasks.

_____

_____

_____

_____

_____

_____

_____

_____

31. List the five factors that may extend or influence the duration of labor.

_____

_____

_____

_____

_____

32. If the patient's uterus should relax after delivery, what nursing care should be given?

_____

33. _____ is the maternal discharge of blood, mucus, and tissue from the uterus.

34. What are the signs of placental separation?

_____

_____

_____

35. The onset of rhythmic contractions, the relaxation of the uterine smooth muscles which results in effacement or progressive thinning of the cervix, and dilation or widening of the cervix is known as:

_____

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES, LESSON 2

1. Contractions.
   Show.
   Cervix.
   Fetal movement. (para 2-2)

2. 10 (para 2-3a)

3. Uterine contractions. (para 2-3a)

4. Dilating stage.
   Delivery or expulsive stage.
   Placental stage.
   Recovery or stabilization stage. (para 2-3)

5. Latent (early) or prodromal.
   Active or accelerated.
   Transient or transitional. (para 2-3a)

6. F (para 2-5c(1))

7. T (para 2-5f(1))

8. T (para 2-5m(1))

9. T (para 2-7a)

10. T (para 2-7b)

11. F (para 2-8a)

12. T (para 2-10c)

13. F (para 2-13c)

14. T (para 2-14e(5)NOTE)

15. T (para 2-2a(1))

16. F (para 2-2b(2))

17. F (para 2-5f(1))

18. T (para 2-5f(5))

19. See chart. (para 2-2a)

FACTOR	TRUE LABOR	FALSE LABOR
Contractions	Produce progressive dilation and effacement of the cervix. Occur regularly and increase in frequency, duration, and intensity.	Do not produce progressive dilatation and effacement. Are irregular and do not increase in frequency, duration, and intensity.
Show	Is present.	Not present. May have brownish discharge which may be from vaginal exam if within the last 48 hours.
Cervix	Becomes effaced and dilates progressively.	Usually uneffaced and closed.
Fetal Movement	No significant change, even though fetus continues to move.	May intensify for a short period or it may remain the same.

20. Active or accelerated phase. (para 2-4b)

21. Transient or transitional phase. (para 2-4c)

22. Prevent fecal contamination of the perineum during delivery. Cleanse the bowel, providing more room for fetal passage. Stimulate uterine contractions. (para 2-5c(4))

23. Over the fundal area of the patient's uterus. (para 2-5d(3))

24. To detect presence of fetal life at time of admission and to detect development of fetal distress during labor. (para 2-5f)

25. Second phase. (para 2-6a(2))

26. Never leave a patient alone nor turn your back on the perineum. Encourage the patient to rest between contractions and to push with contractions.
Position patient's legs in stirrups.
Prep the patient's perineum.
Monitor the patient's blood pressure and the fetal heart tones every 5 minutes and after each contraction. (para 2-8)

27. Crowning.
Delivery of the head.
Delivery of the anterior shoulder.
Delivery of the posterior shoulder.
Delivery of the trunk and lower body.
Clamping and cutting of the umbilical cord. (para 2-9).

28. Exact date and time of delivery.
Sex of the infant.
Condition of the infant after birth.
Position of the infant at delivery.
Type of episiotomy, lacerations.
Spontaneous or forceps delivery.
Use of oxygen and suction on the infant.
Number of vessels in the cord.
Mother's name.
Any other pertinent facts about the delivery. (para 2-10)

29. Bulging of the lower abdomen.
Spongy feeling mass between the fundus and the pubis.
Displaced uterus from the midline, usually to the right.
Increase of lochia flow. (para 2-15i(1))

30. Any 8 of the sixteen listed. (para 2-15)

Transfer the patient from the delivery table.
Provide care of the perineum.
Transfer the patient to the recovery room.
Ensure emergency is available in the RR for possible complications.
Check fundus.
Monitor lochia flow.
Observe the mother for chills.
Monitor the mother's vital signs and general condition.
Observe patient's urinary bladder for distention.
Evaluate the perineal area for signs of developing edema/hematoma.
Observe for signs of hemorrhage.
Assess for ambulatory stability.
Observe C-section patients.
Instruct the patient in the proper perineal care.
Discontinue I.V.
Complete notes and transfer patient (if stable) to the ward.

31. Passenger (fetus).
Passage (birth canal).
Powers (contractions).
Placenta.
Psychology (psychological state of the woman). (para 2-16)

32. Massage the fundus until it is firm. (para 2-15e(2))

33. Lochia. (para 2-15f)

34. The uterus becomes globular in shape and firmer.
The uterus rises in the abdomen.
The umbilical cord descends three inches or more further out of the vagina.
Sudden gush of blood. (para 2-11f)

35. Labor. (para 2-1b)

End of Lesson 2

LESSON ASSIGNMENT

LESSON 3 Precipitate and Emergency Delivery.

TEXT ASSIGNMENT Paragraphs 3-1 through 3-7.

LESSON OBJECTIVES After completing this lesson, you should be able to:

3-1. Define precipitate and emergency delivery.

3-2. Identify three factors which may predispose a woman to precipitate delivery.

3-3. Identify descriptive statements that refer to the dangers of a precipitate delivery.

3-4. Select those procedures that are used to provide the nursing care for a patient having a precipitate delivery.

3-5. Select nursing interventions used during the delivery of an infant.

3-6. Select descriptive statements that refer to the nursing care after a precipitate delivery.

SUGGESTION After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 3

PRECIPITATE AND EMERGENCY DELIVERY

3-1. GENERAL

There are times when labor progresses so rapidly that the nurse is faced with the task of delivering the baby even within the confines of a hospital setting. And, in addition, there are times when a woman begins labor in a variety of physical settings and during a variety of climatic disturbances away from a medical facility. During these situations is when the nurse has the primary responsibility for providing a physically and psychologically safe experience for the woman and her baby. It is important that the nurse maintains composure and keeps calm. Whenever possible, the patient should be told what to anticipate and what she can do to cooperate effectively. Working as a team is essential and can be accomplished if confidence is instilled by competence in both the physical and emotional aspects of care.

3-2. TERMS AND DEFINITIONS

a. **Precipitate Delivery**. This refers to a delivery which results after an unusually rapid labor (less than three hours) and culminates in the rapid, spontaneous expulsion of the infant. Delivery often occurs without the benefit of asepsis.

b. **Emergency Delivery**. This refers to an unplanned, non delivery room, non-hospital birth which occurs as a result of precipitous labor, geographical distance from the hospital, or other cause for the unexpected delivery.

NOTE: Be aware that the following information also applies to emergency delivery. However, all situations/factors may not be applicable due to the setting (hospital/non-hospital); but it will be to your advantage to be knowledgeable and skilled with all of the following information.

3-3. FACTORS THAT MAY PREDISPOSE A WOMAN TO A PRECIPITATE DELIVERY

There are common factors which may cause a woman to deliver rapidly. These factors include:

a. A multipara with relaxed pelvic or perineal floor muscles may have an extremely short period of expulsion.

b. A multipara with unusually strong, forceful contractions. Two to three powerful contractions may cause the baby to appear with considerable rapidity.

c. Inadequate warning of imminent birth due to absence of painful sensations during labor.

3-4. DANGER OF PRECIPITATE DELIVERY

There are several misfortunes associated with precipitate delivery for both the mother and the infant. They are classified as maternal and neonatal.

a. **Maternal**.

(1) May cause lacerations of the cervix, vagina, and/or perineum. Rapid descent and delivery of an infant does not allow maternal tissues adequate time to stretch and accommodate the passage of the infant.

(2) There may be hemorrhaging originating from lacerations and/or hematomas of the cervix, vagina, or perineum. There may also be hemorrhaging from the uterus. Uterine atony may result from muscular exhaustion after unusually strong and rapid labor.

(3) There may be infection as a result of unsterile delivery.

b. **Neonatal**.

(1) May cause intracranial hemorrhage resulting from a sudden change in pressure on the fetal head during rapid expulsion.

(2) May cause aspiration of amniotic fluid, if unattended at or immediately following delivery.

(3) There may be infection as a result of unsterile delivery.

3-5. NURSING CARE TO PREPARE FOR ANTICIPATED PRECIPITATE BIRTH

a. **Assess Patient for an Impending Precipitous Delivery Situation**.

(1) Patient has previous obstetric history of rapid labor/delivery.

(2) Patient complains of a sudden, intense urge to push.

(3) Notable increase in bloody show.

(4) Sudden bulging of the perineum.

(5) Sudden crowning of the presenting part.

b. **Call for Help**. Do not leave the patient unattended.

c. **Obtain a Sterile Obstetric or Precipitate Delivery Pack, if Available**. The pack contains a variety of supplies to include towels, drapes, sanitary pads, and so forth. Priority equipment includes:

(1) Gloves - sterile gloves are preferred as they help promote asepsis, however, if non-sterile gloves are available they should be utilized as protection for the nurse.

(2) Towel/cloth-to provide a friction surface for control of delivery of the fetal head.

(3) Bulb syringe-for aspiration of amniotic fluid from the infant's mouth.

(4) Hemostats or cord clamps-to clamp the umbilical cord.

(5) Scissors-to cut the episiotomy/cord.

(6) Dry blanket/towel-to wrap the infant after delivery.

d. **Provide the Cleanest Environment Possible**. If no sterile equipment is available this should include:

(1) Paper, towel, blanket, or coat to place under the patient's buttocks.

(2) Ligating material such as string, yarn, or shoelaces to tie the cord.

(3) A sharp instrument such as scissors, a knife, or a razor to cut the cord.

(4) A dry cloth to wrap infant after delivery.

e. **Provide for Asepsis to the Greatest Extent Possible**.

(1) Pour Betadine® over the patient's perineum if time does not permit for perineal prep.

(2) Wash your hands and glove, if possible.

f. **Support the Patient**.

(1) Keep the patient informed of plans for delivery.

(2) Speak in a calm tone and provide direction to available assistants (e.g., significant other).

(3) Encourage the patient to pant or blow through contractions to slow the delivery process and to decrease the force of expulsion.

(4) Provide for privacy, but do not leave the patient alone.

3-6. NURSING CARE FOR MANAGEMENT OF PRECIPITATE DELIVERY

See figure 3-1.

a. **Check for Presence of an Intact Amniotic Sac**.

(1) If the membranes do not break spontaneously, they should be ruptured just prior to or with the delivery of the head.

(2) Caution must be taken to prevent the membranes from covering the infant's mouth as the first breath is taken, otherwise aspiration of amniotic fluid can occur.

b. **Support the Perineum and Infant's Head**.

(1) Apply support to the perineum with your dominant hand (usually right hand) using a towel or cloth. When available, turn your hand with your palm facing the fetal head and fingers pointed downward, and apply firm pressure against the perineum with the flattened fingers.

(2) Apply support to the fetal head with your nondominant hand. Spread your middle three fingers; place your fingers against the anterior aspect of the head.

(3) Increase the pressure of the dominant hand in a downward motion against the perineum as the fetal head extends. This will assist in "sliding" the perineum over the fetal face. If the perineum is not flexible enough to deliver the fetus without lacerations, maintain firm pressure. This will help to minimize the extent of lacerations.

(4) Provide mild downward pressure with the nondominant hand against the fetal head as the fetal head extends. This will guide the head away from the anterior vulva and minimize lacerations around the urethra.

(5) Take special care to avoid excessive pressure on the fetal head. **Never** attempt to delay delivery by applying pressure on the fetal head.

(6) Combine efforts of the right and left hand. This will result in a slow, controlled extension of the fetal head.

c. **Assist With the Actual Delivery of the Head**. This should be accomplished between contractions to slow the force of expulsion.

d. **Coach the Patient to Pant/Blow**. This should be done as the head delivers. However, she may be required to bear down slightly to assist with delivery of the large diameter of the head. Panting and blowing helps to avoid pushing after delivery of the head to allow time to bulb suction amniotic fluid from the infant's mouth.

e. **Bulb Suction Amniotic Fluid from the Infant's Mouth**. Place your finger into the infant's mouth to allow insertion of the syringe.

f. **Allow Rotation.** Allow the infant to spontaneously accomplish external rotation.

g. **Check for a Nuchal Umbilical Cord**. Slide one or two fingers along the anterior side of the infant's head and neck to the shoulder to assess for the presence of a nuchal (around the neck) umbilical cord.

(1) If there is a loosely wrapped cord, the cord should be lifted and slid over the infant's head. This is known as "reducing" the cord.

(2) If there is a tight nuchal cord, the cord must be clamped twice and cut between the clamps.

(3) If the cord is loose, but cannot be lifted over the infant's head, it may be slid over the delivering body.

NOTE: A nuchal cord occurs in about 25 percent of all deliveries.

h. **Allow Infant to Complete External Rotation**. After complete rotation, place your hands so that the palms are flat against the sides of the infant's head.

i. **Coach the Patient to Push and to Pant/Blow.** Tell the patient when to push and when to pant/blow. This will assist with a controlled delivery of the shoulders.

(1) The nurse applies gentle downward pressure on the head until the anterior shoulder delivers from under the pubic arch and becomes visible.

(2) Support the infant's head and neck. The infant is gently pushed or lifted upward to facilitate delivery of the posterior shoulder.

j. **Assist With Delivery of the Posterior Shoulder**. After the delivery of the posterior shoulder, the infant's body is generally expelled rapidly. However, if the infant is large, the mother may have to assist by pushing.

k. **Care for the Infant**.

(1) The nurse should cradle the infant against his (the nurse's) body with the infant's head supported by the palm of his hand and the body supported by the forearm. This method allows the nurse a free hand.

(2) The infant should be held with his head tilted downward to facilitate the drainage of mucus and amniotic fluid from the upper airway.

(3) The infant should be held at or below the level of the uterus until the umbilical cord stops pulsating to prevent loss of neonatal blood to the placenta.

NOTE: The infant may cry or breathe spontaneously or with the clamping of the cord.

(4) If the infant does not begin spontaneous respiration, he should be stimulated to breathe. You should place the infant on a flat surface and rub his back briskly. This can be achieved with the same motions required to dry the infant. Slap the soles of the infant's feet if more aggressive stimulation is required.

(5) Do not "slap" the infant's buttocks. This action may produce sufficient bruising of a large surface area and may result in compromising circulatory volume.

(6) Never suspend the infant by his feet. This action hyperextends the infant's spine which has been flexed throughout fetal development. Also, it increases the intracranial pressure and may cause capillary rupture and increases the chances of dropping the infant.

(7) Dry and wrap the infant immediately to prevent heat loss. In an emergency setting, place wrapped infant in the mother's arms to be held close to her body to maintain warmth.

(8) Check the infant frequently to assess for regular respirations.

(9) Determine one (1) and five (5) minute APGAR scores.

l. **Assist with Delivery of the Placenta**.

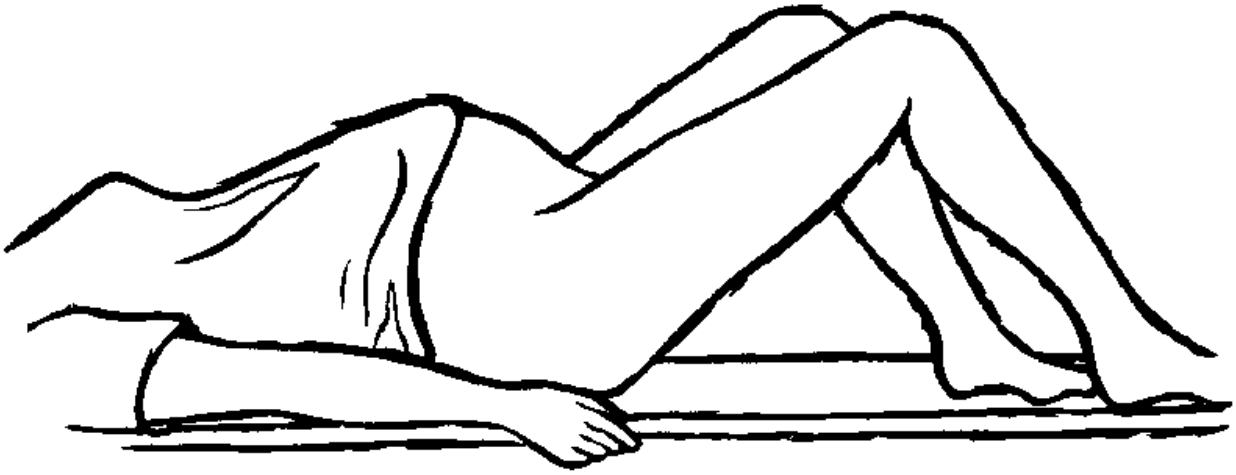
CAUTION: Never tug on the cord to attempt to speed delivery. This may evulse or tear the cord from the placenta. It may, also, encourage the uterus to invert.

(1) Observe for signs of placenta separation. There may be a sudden gush of blood, sudden lengthening of the cord, or a sudden rise in position of the uterus. This usually occurs 5 to 10 minutes after delivery.

(2) Coach the mother to bear down after these placental separation signs are noted. Bearing down will promote delivery of the placenta.

(3) Massage the uterus immediately after delivery of the placenta to promote uterine contraction - in emergency settings.

(4) Encourage the patient to breast-feed or to stimulate nipples to promote release of oxytocin - in emergency settings.



Desired Position

Figure 3-1. Managing precipitate delivery (continued).

3-7. NURSING CARE AFTER A PRECIPITATE DELIVERY

a. Assist the mother into a comfortable position with her legs extended.

b. Provide a clean surface under the patient's buttocks.

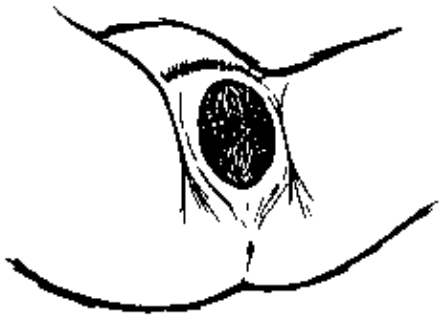
c. Check uterine fundus every 10 to 15 minutes during the first hour to assure contraction of myometrium and normal lochial flow.

(1) Gently massage the uterus if the fundus is soft or boggy.

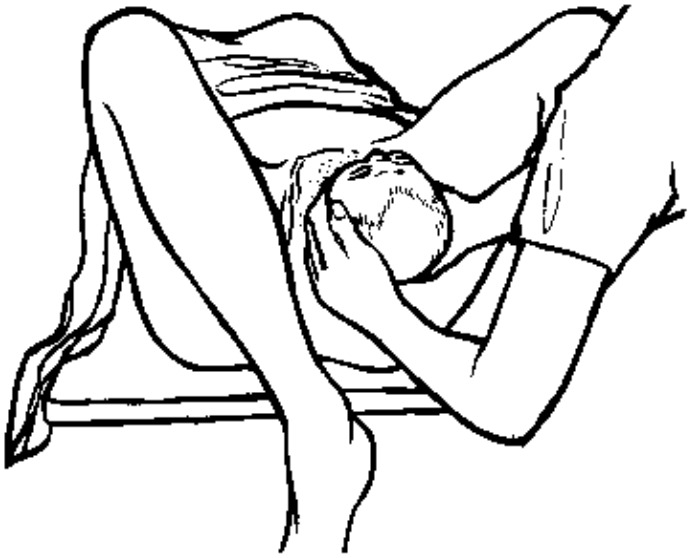
(2) Avoid overstimulation as myometrium will fatigue and result in severe atony.

d. Assess the amount of blood loss from the delivery. Normally, blood loss is less than 500 cc. Save all evidence of blood loss.

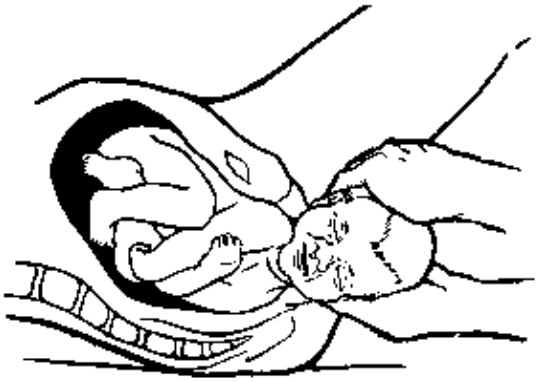
e. Assess for intactness of the placenta.



Crowning just before delivery

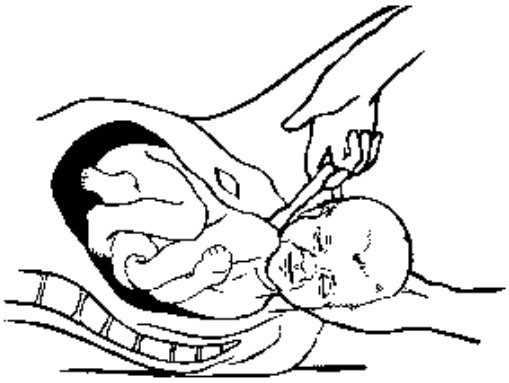


Supporting infants's head

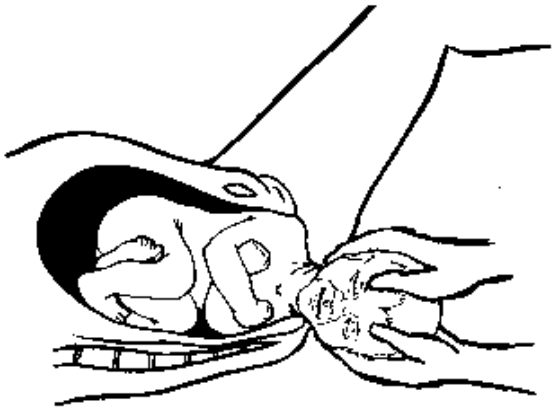


Assisting with delivery of infant's head

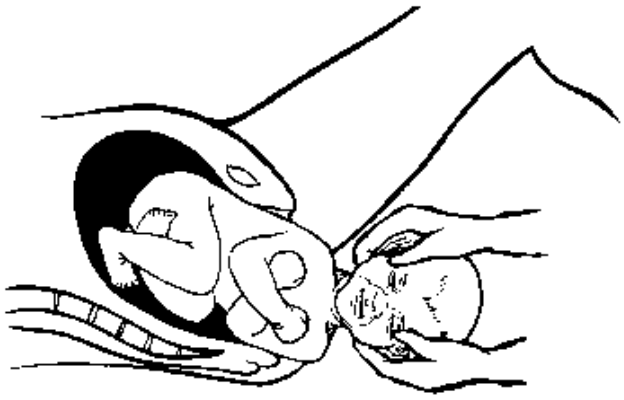
Figure 3-1. Managing precipitate delivery (continued).



Loosing cord

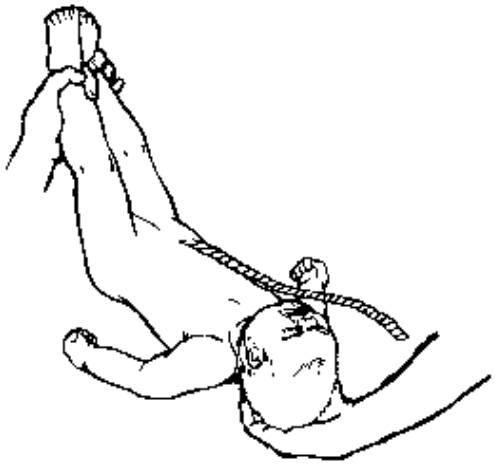


Guiding infant's head downward to assist in upper shoulder delivery

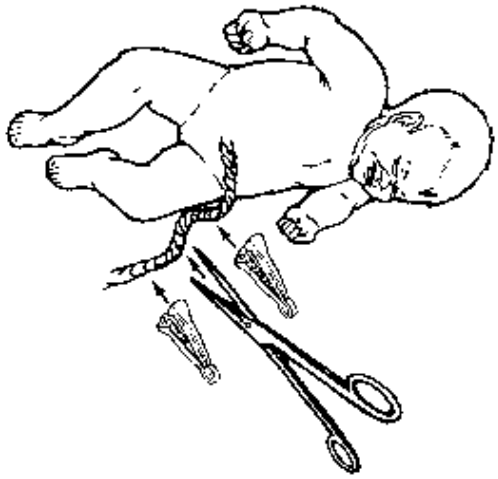


Guiding infant's head upward to assist in lower shoulder delivery

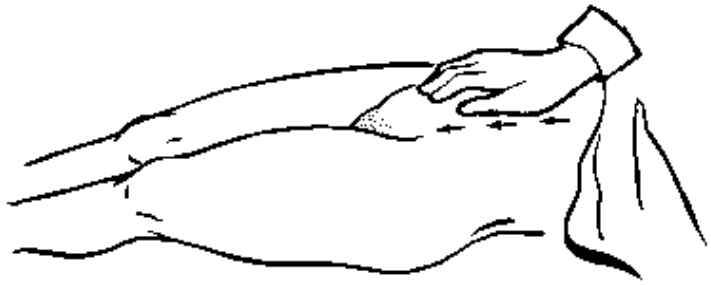
Figure 3-1. Managing precipitate delivery (continued).



Holding infant with head tilted downward to facilitate drainage



Preparing to clamp cord



Massaging the uterus

Figure 3-1. Managing precipitate delivery (completed).

f. Provide for comfort and warmth of both patients. Promote fluids in the mother as tolerated.

g. Encourage the mother to void to prevent bladder distention.

h. Make notations about the birth to include:

(1) Fetal position and presentation.

(2) Presence of nuchal cord and method of reduction.

(3) Color, character, and amount of amniotic fluid.

(4) Time of delivery.

(5) Sex of infant.

(6) APGAR scores; need for stimulation or resuscitation.

(7) Approximate time of placental expulsion, appearance, and completeness.

(8) Maternal condition (affect, amount of bleeding, and status of uterine contraction).

(9) Any unusual occurrences during the delivery.

Continue with Exercises

EXERCISES, LESSON 3

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. What three factors may predispose a woman to a precipitate delivery?

   _____

   _____

   _____

2. List the dangers of precipitate delivery.

MATERNAL	**NEONATAL_____**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3. List the priority equipment found in a sterile obstetric or precipitate delivery pack.

_____	_____
_____	_____
_____	_____

4. What should be provided if there is no sterile equipment available?

_____

_____

_____

_____

5. When should you bulb suction amniotic fluid from the infant's mouth?

_____

6. What should be done in the following situations?

Tight nuchal cord -- _____

Cord is loose, cannot be
lifted over infant's head -- _____

7. What can happen if you slap an infant's buttocks to stimulate breathing?

_____

_____

8. What is the purpose of drying and wrapping an infant immediately after delivery?

_____

9. How often should you check the mother's uterine fundus during the first hour after delivery?

_____

10. After delivery, why should the mother void often?

_____

11. List six of the nine facts that should be documented about the birth.

_____

_____

_____

_____

_____

_____

Check Your Answers on Next Page

SOLUTIONS, LESSON 3

1. A multipara with relaxed pelvic or perineal floor muscles.
   A multipara with usually strong, forceful contractions.
   Inadequate warning of imminent birth due to absence of painful sensations during labor. (para 3-3)

2.

MATERNAL	NEONATAL
Lacerations of the cervix, vagina, and/or perineum.	Intracranial hemorrhage.
Hemorrhaging originating from lacerations/hematomas or the uterus.	Aspiration of amniotic fluid.
Infection as a result of unsterile delivery. (paras 3-4a and b)	Infection as a result of unsterile delivery.

3. Gloves.
   Towel/cloth.
   Bulb syringe.
   Hemostats or cord clamps.
   Scissors.
   Dry blanket/towel. (para 3-5c)

4. Paper, towel, blanket, or cord to place under patient's buttocks.
   Ligating material such as string, yarn, or shoelaces to tie the cord.
   A sharp instrument such as scissors, a knife, or razor to cut the cord.
   A dry cloth to wrap infant after delivery. (para 3-5d)

5. After delivery of the head. (paras 3-6d and e)

6. Tight nuchal cord--<u>clamp it twice and cut between the clamps.</u>

   Cord is loose, cannot be lifted over infant's head--<u>slide the cord over the delivering body</u>. (paras 3-6g(2),(3))

7. May cause bruising of a large surface area and may result in compromising circulatory volume. (para 3-6k(5))

8. To prevent heat loss. (para 3-6k(7))

9. Every 10 to 15 minutes. (para 3-7c)

10. To prevent bladder distention. (para 3-7g)

11. Any six of the nine listed.

    Fetal position and presentation.
    Presence of nuchal cord and method of reduction.
    Color, character, and amount of amniotic fluid.
    Time of delivery.
    Sex of infant.
    APGAR scores; need for stimulation or resuscitation.
    Approximate time of placental expulsion, appearance, and completeness.
    Maternal condition (affect, amount of bleeding, and status of uterine contractions).
    Any unusual occurrences during the delivery. (para 3-7h)

End of Lesson 3

LESSON ASSIGNMENT

LESSON 4 Management of Obstetric Discomfort During Labor.

TEXT ASSIGNMENT Paragraphs 4-1 through 4-11.

LESSON OBJECTIVES After completing this lesson, you should be able to:

4-1. Identify the two sources of discomfort during childbirth.

4-2. Identify the factors that influence the amount of painful stimuli experienced by the mother in labor.

4-3. Identify those factors used to evaluate the degree of pain being experienced by the mother in labor.

4-4. Select the goals of the nursing measures used to minimize discomfort during childbirth.

4-5. Identify nursing measures, which can be used to minimize discomfort during childbirth.

4-6. Select descriptions of drug classifications, which are used during childbirth.

4-7. Identify the disadvantages of general anesthesia during childbirth.

4-8. Identify nursing interventions, which need to be taken when caring for a patient receiving anesthesia.

4-9. Identify the nursing interventions to be taken when caring for an obstetric patient suffering from maternal hypotension.

SUGGESTION After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 4

MANAGEMENT OF OBSTETRIC DISCOMFORT DURING LABOR

4-1. GENERAL

The management of obstetric discomfort during labor is the responsibility of all nursing personnel. The relief or reduction of pain during labor can be achieved by several different methods (that is, psychoprophylactic methods, systemic drugs, local and regional nerve blocks, and general anesthesia). It will be important to you to have an understanding of where the discomfort originates, the nursing interventions to be provided, and measures used by the physician to help relieve discomforts experienced during labor.

4-2. SOURCES OF DISCOMFORT DURING CHILDBIRTH

a. **Visceral Discomfort (Abdominal or Internal Organs)**. This occurs most often during the first stage of labor. It results from uterine contractions. Discomfort is felt in the lower abdomen, lumbar region, and thighs. The mother will be free of pain between contractions.

b. **Perineal Discomfort**. The greatest discomfort is felt during the second stage of labor. This is when the cervix is dilating from 8 to 10 cm. Discomfort is due to the stretching of the vagina and the perineum as the presenting part moves through the birth canal.

4-3. FACTORS THAT MAY INFLUENCE THE AMOUNT OF PAINFUL STIMULI

a. **Patient's Pelvic Anatomy Itself**. If the patient's pelvic anatomy is large, it may be easily expandable and if it is small, more stretching and increased intraabdominal pressure may be required.

b. **Fetal Head Size**. A large head would require more room and more time to descend and deliver. A small head may pass through the pelvis with a minimal amount of stretching.

c. **Strength, Frequency, and Duration of Uterine Contractions**.

(1) Extremely strong contractions may cause significant discomfort to the patient.

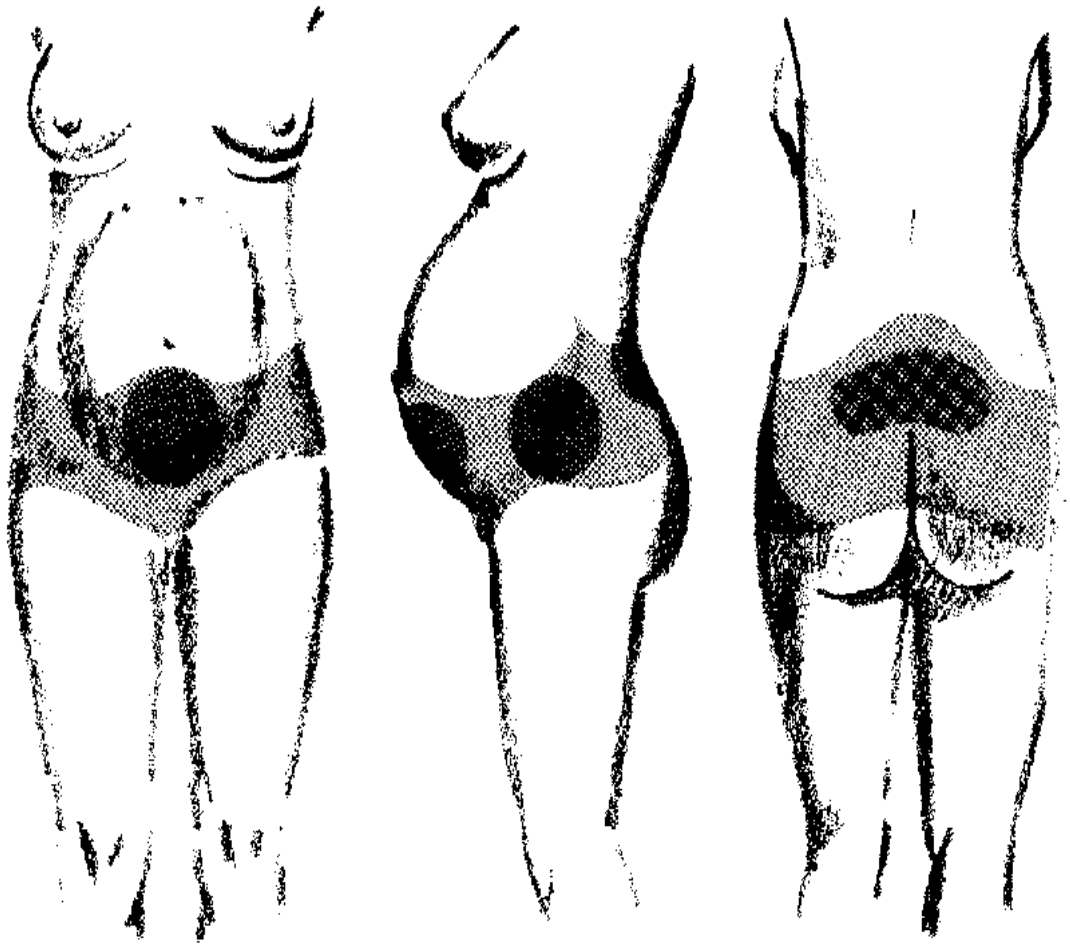
(2) Contractions occurring every two to three minutes may cause the patient to be fatigued and less tolerable of the discomfort.

(3) Contractions continually lasting sixty to ninety seconds require a great deal of tolerance and concentration by the patient.

d. **Presence or Absence of Certain Obstetrical Deviations or Complications**. The need for induction may result in longer, harder labor than if labor was spontaneous. Problems with the fetus in utero may preclude the patient from receiving any type of sedation.

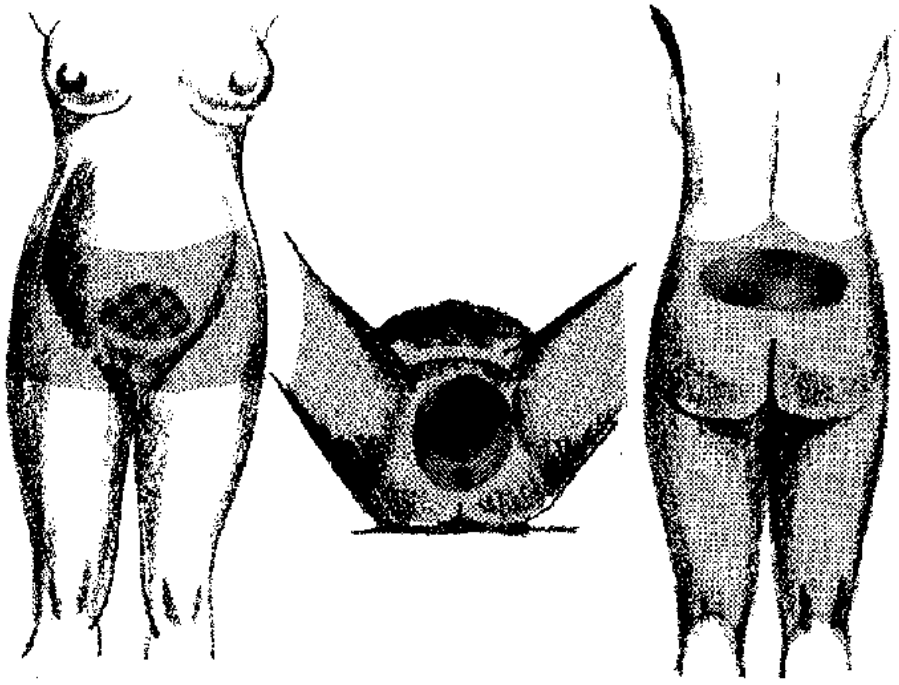
e. **Patient's Pain Threshold**. It is believed that the pain felt may be altered by the level of available morphine-like hormonal substances in the body called endorphins. Endorphins are a special protein. They appear to interfere with transmission of pain producing impulses to the brain or may interfere with the brain's sensitivity to these impulses. Endorphin levels decrease in the presence of anxiety, tension, fatigue, and extended negative stimuli.

NOTE: See figure 4-1 for areas of pain.

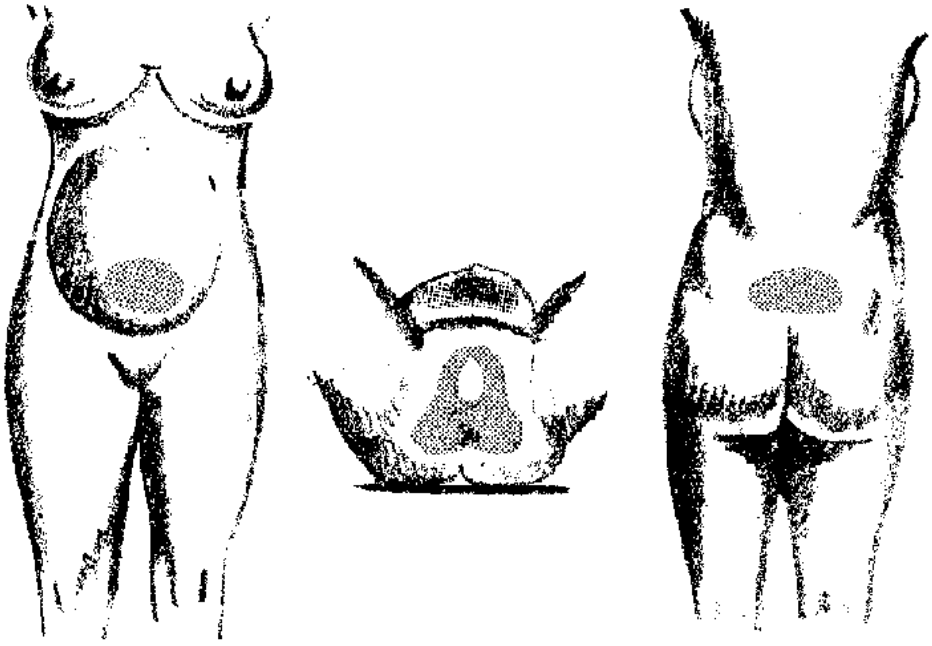


Distribution of pain during the later phase of the first stage of labor

Figure 4-1. Areas of pain (continued).



Distribution of pain during the early phase of the second stage of labor



Distribution of pain during the later phase of the second stage of labor and actual delivery

Figure 4-1. Areas of pain (concluded).

4-4. EVALUATION OF THE DEGREE OF PAIN BEING EXPERIENCED

a. **What The Mother Says**. Is she requesting pain medication? Is she talking during the actual contraction?

b. **Patient's Response**. Comparison of the patient's response to a given specific phase of labor to the expected response for that phase is considered. The patient is usually talkative and able to walk about during the latent phase. Whereas, the patient may be nauseated, irritable, and uncooperative in the transition phase.

c. **Facial Expression**. This usually gives the truest impression. Grimacing indicates increased pain.

d. **Color of Skin**. If the patient's skin is pale, she may be weak or tired. If she is perspiring, she may be working hard with each contraction.

e. **Blood Pressure, Pulse, and Respirations**. The patient's blood pressure is expected to elevate during the actual contraction, which is due to vasoconstriction. Her blood pressure should be taken at least fifteen seconds after contractions subsides. As anxiety and pain increase, the patient's blood pressure, pulse, and respiration increase.

f. **Posture**. The patient may become stiff and tense up. This is an indication that the patient is not tolerating well. Her legs and arms may be loose and relaxed. This indicates that the patient is effectively dilating with contractions.

4-5. GOALS OF NURSING MEASURES TO MINIMIZE DISCOMFORT DURING CHILDBIRTH

Nursing measures to minimize discomfort during childbirth involves two areas. They are to decrease the intensity of pain and to minimize the degree to which the patient is bothered by pain. In decreasing the intensity of pain, the patient is given the opportunity to rest and is allowed more involved participation in the childbirth process. In addition, minimizing the degree to which the patient is bothered by pain will allow her to progress faster and keep her from becoming so fatigued.

4-6. NURSING MEASURES UTILIZED TO MINIMIZE DISCOMFORT DURING CHILDBIRTH

a. **Give Frequent Explanations to the Patient**.

(1) Explain to the patient what she is to expect, especially if she did not attend childbirth classes.

(2) Give simple and straightforward answers.

(3) Inform the patient of all progress. Do not give specific times for progress.

(4) Emphasize that pain diminishes between contractions. Encourage the patient to relax. Have her close her eyes and sleep.

(5) Ease panic associated with pain. Remind the patient of safety measures required for the baby and encourage concentration during the contractions.

b. **Provide Comfort Measures**.

(1) Ensure that there is clean and dry bedding and a clean gown.

(2) Inform the patient of frequent oral hygiene, especially after vomiting. This includes brushing the teeth and using mouthwash.

(3) Provide ice chips.

(4) Provide a cool cloth for the patient's face, if necessary.

(5) Give back rubs or pressure, especially over the lower sacrum area.

(6) Position the patient as needed. The side lying position is recommended. Lying on the left side is preferred because it increases placental flow. Place pillows behind the patient's back and between her legs, as necessary.

(7) Provide for a quiet room. Dim the lights if possible to encourage relaxation.

(8) Have the patient void every 2 hours; assist as needed.

c. **Encourage the Use of Psychoprophylaxis**. Psychoprophylaxis refers to the mental and physical education of the parents in preparation for childbirth, with the goal of minimizing the fear and pain and promoting positive family relationships. This includes relaxation techniques and exercises learned during prepared childbirth classes.

(1) Relaxation techniques include breathing during contractions, concentration on the focal point, and effleurage (see figure4-2). Effleurage is a light, rhythmic stroking techniques used during childbirth.

(2) The pelvic tilt and abdominal exercises are the exercises to be used.

d. **Explain the Effects of Analgesic Medications During Labor.**

(1) Fetus. What the patient in labor receives crosses the placenta and goes to the fetus. The fetus becomes sedated as a result of the medication. It may cause respiratory distress in the fetus if it is not worn off by the time of delivery. Medication is not usually given if the fetus is premature due to problems they have detoxifying the drug due to the immature system. It is, also, not usually given if the fetus is already showing signs of compromise or distress.

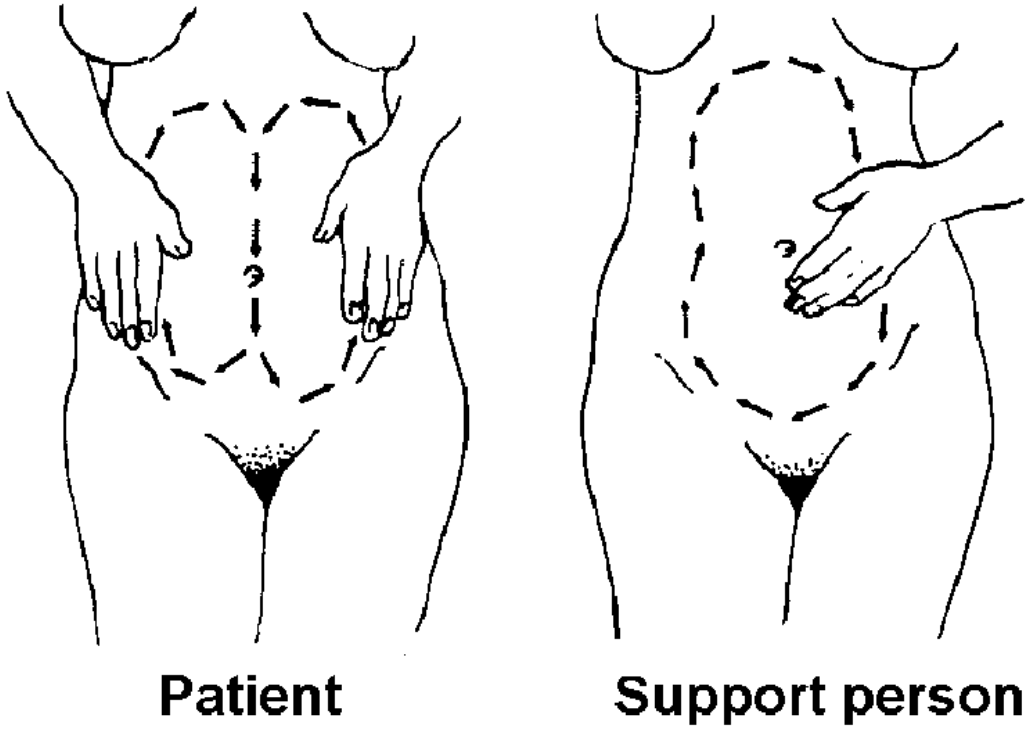


Figure 4-2. Effleurage.

(2) Mother. The medication will make the patient sleepy or drowsy. It will not totally eliminate the discomfort. When given during the active phase, it may cause appropriate maternal relaxation that results in more rapid dilatation. It is not generally given during the latent phase (less than 4 cm dilatation) because it may interrupt a regular contraction pattern. It is not generally given in the transitional phase (greater than 8 cm dilatation) as delivery time cannot be predicted exactly and the infant may be born under the full impact of the medication.

(3) Labor and delivery process. Medications may slow labor down and space contractions further apart. In addition, it may speed the labor due to the relaxed state of the patient.

4-7. CLASSIFICATION OF DRUGS USED FOR CHILDBIRTH

a. **Analgesics (Narcotics and Nonnarcotics)**. Analgesics refer to a technique or medication that reduces or eliminates pain. A narcotic analgesic produces the same amount of CNS depression in the fetus as that produced in the mother. Analgesics are the most common form used in obstetrics today. They include:

(1) Demerol®--narcotic.

(2) Morphine®--narcotic.

(3) Stadol®--nonnarcotic.

(4) Nubain®--narcotic.

(5) Nisentil®--narcotic.

b. **Anesthetic**. Anesthetic refers to a technique or medication that partially or completely eliminates sensation or feeling. There are two types of nerve-blocking anesthetics, local and regional. Local anesthetics block sensory nerve pathways at the organ level. Regional anesthetics block sensory nerve pathways along the course of tissues. Refer to figure 4-3 for the level of anesthesia necessary for cesarean and vaginal delivery.

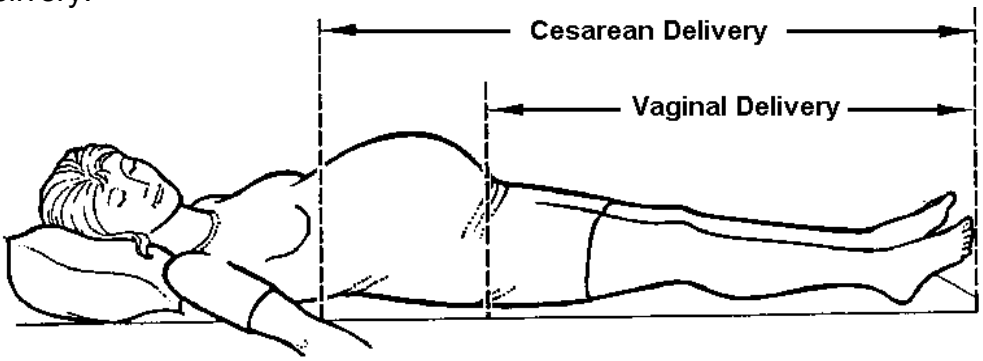


Figure 4-3. Level of anesthesia for cesarean and vaginal delivery.

c. **Sedative or Tranquilizer**. This refers to a medication that relieves anxiety and quiets the patient. It may combine with analgesics to enhance the effects of analgesics (although that effect is now being questioned). The primary ones for obstetrics are:

(1) Phenergan®--given more for its antiemetic effect.

NOTE: Antiemetic refers to preventing or alleviating nausea and vomiting.

(2) Vistaril®.

(3) Largon®.

4-8. NERVE-BLOCKING ANESTHETICS USED IN OBSTETRICS

a. **Local**. Local anesthetics produces anesthesia only in the area where injected. It is used in the superficial nerves of the perineum to make or repair episiotomy. Lidocaine® 1percent drug normally used and is short acting. Local anesthetics are used frequently for delivery.

b. **Regional**. Regional anesthetics include paracervical block, pudendal block, saddle block (low spinal), and caudal or lumbar epidural. (See figure 4-4.)

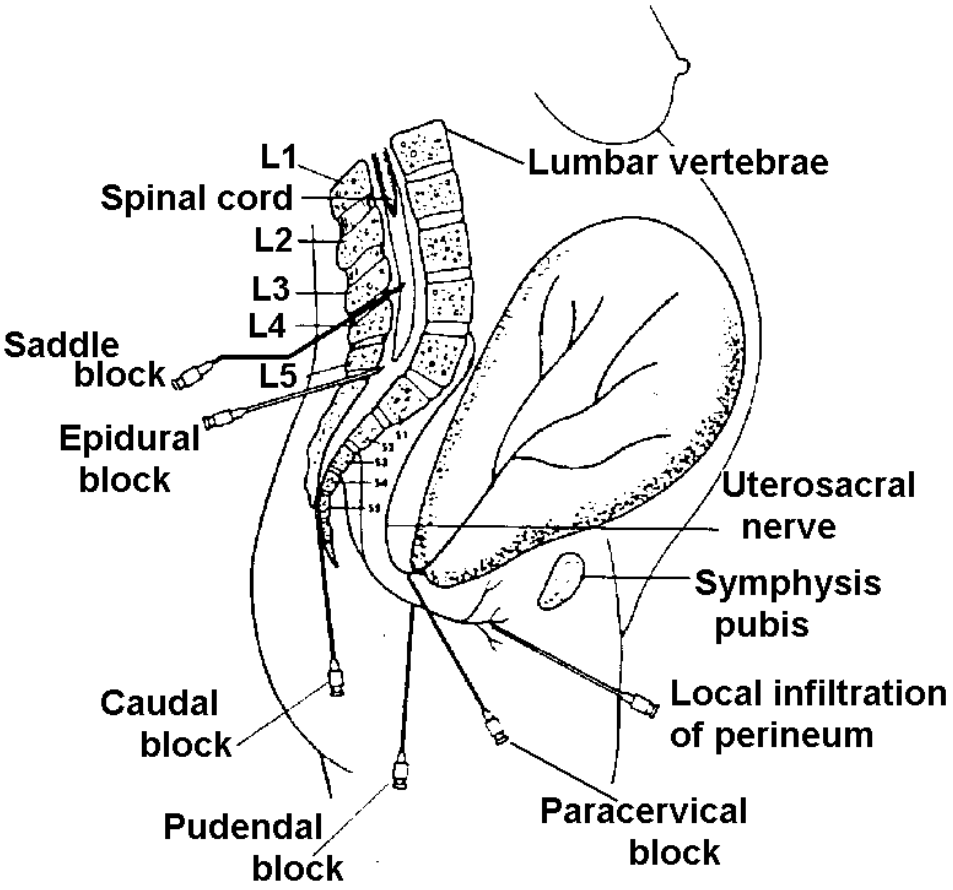


Figure 4-4. Injection sites for regional anesthetics.

(1) Paracervical block. Paracervical block (see figures. 4-4 and 4-5) is an injection of a dilute local anesthetic into the paracervical nerve endings through the vagina. There is relief within five minutes after administration and is good for about 45 to 60 minutes. The patient doesn't feel the cervical pain related to the uterine contractions. When the anesthetic is injected into the tissues lateral to the cervix, it is picked up by the circulation, which quickly involves the uterus and placenta. When overdosage occurs, the fetus may exhibit bradycardia because of the quinidine-like effect of the anesthetic on the myocardium or quinidine due to a reduction in uterine blood flow. In addition, CNS medullary depression may develop and the neonate may show vascular collapse and apnea at delivery. These are potential complications and continuous fetal monitoring is required.

(2) Pudendal block. Pudendal block (see figures. 4-4 and 4-6) is an injection of local anesthetic on both sides of the vagina. It is administered just prior to delivery. It numbs the perineal area, vulva, and the vagina. It is used frequently in labor and delivery in combination with local anesthesia.

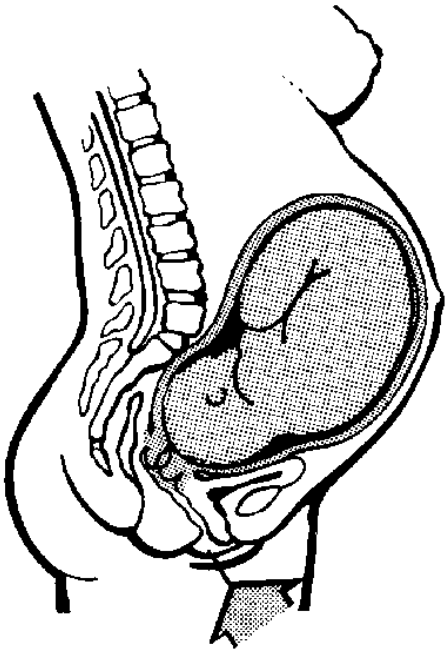


Figure 4-5. Paracervical block

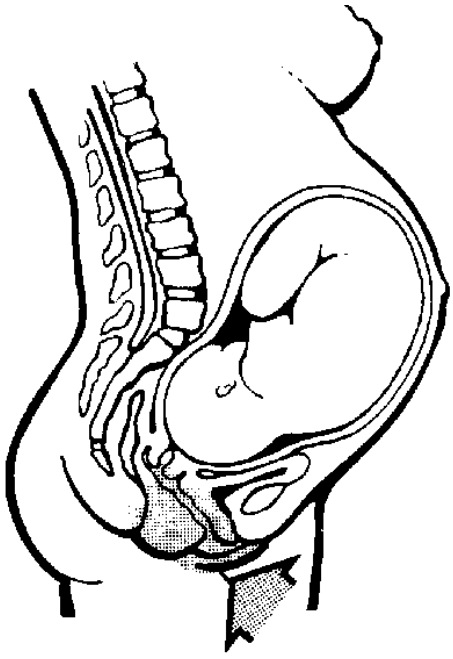


Figure 4-6. Pudendal block.

(3) Saddle block (low spinal). Saddle block (low spinal) (see figure 4-7) is an injection of anesthetic agent directly into the spinal canal below the spinal column to cause loss of sensation below the injection site. The patient has to sit up on the table with legs crossed or hanging over the side. The doctor should numb just the areas that would be touched. The saddle block numbs the abdominal and pelvic areas below the umbilicus to include the perineum, legs, and feet. It blocks the urge to push although

the ability is still there. The patient will usually feel contractions. The side effects are severe maternal hypotension due to vasodilation and decreased oxygen to the fetus as a result of hypotension.

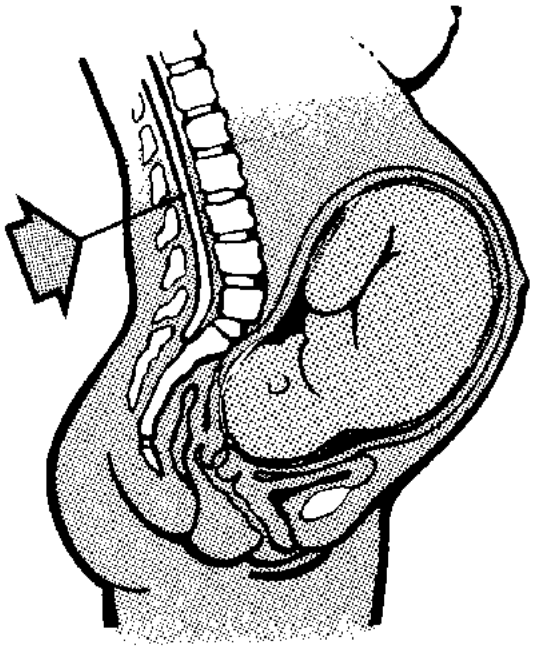


Figure 4-7. Saddle block.

(4) Caudal or lumbal epidural.

(a) Caudal is an injection of anesthetic agent in the peridural space through the sacral hiatus (see figure 4-8). Lumbar epidural is an injection of anesthetic agent on top of the dura space through the 3rd and 4th or 5th lumbar space. These anesthetics numb the abdominal and pelvic areas below the umbilicus to the midthigh. The patient doesn't feel contractions or perineal stretching. The urge to push may be blocked, although the ability is still present.

(b) The advantages of caudal or lumbal epidural are that they are a good pain relief, the patient is alert and cooperative, and there is decreased danger of neonatal depression.

(c) The side effects include:

1 Hypotension secondary to peripheral vasodilation.

2 If dura infusion -- lower extremity sensory changes and loss of the ability to move lower extremities.

3 If blood stream infusion -- ringing in the ears, lightheadedness, circumoral (around mouth) tingling, numbness, metallic taste, and seizures.

4 Burning at the site of injection.

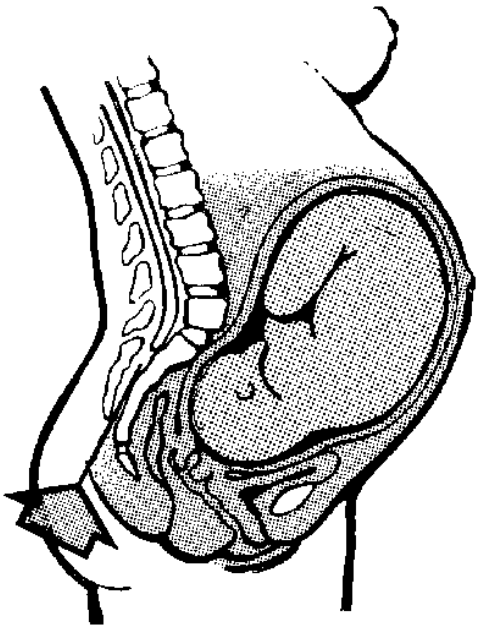


Figure 4-8. Caudal block.

(d) The patient should be informed about the pressure she may feel. She may have a "crazy bone" feeling in her legs, hip, or back at the time the catheter is inserted if it touches a nerve.

(e) Both the caudal and the lumbal epidural require frequent observation and a physician's administration, which limits their use.

4-9. GENERAL ANESTHESIA

a. General anesthesia produces loss of sensation and loss of consciousness. It is seldom indicated for uncomplicated vaginal delivery. It is used in cases of fetal distress requiring immediate delivery and used for C-section when spinal anesthesia is contraindicated.

b. The disadvantages are as follows:

(1) The patient is unable to participate.

(2) It rapidly crosses the placenta causing fetal anesthesia, respiratory depression, and possible anoxia (loss of oxygen).

(3) There is increased risk of maternal aspiration -- evaluate how recently the patient has eaten.

(4) There is possible hemorrhage since nitrous oxide yields uterine relaxation.

4-10. NURSING CARE GIVEN TO THE OBSTETRIC PATIENT RECEIVING ANESTHESIA

a. Continue monitoring the labor patterns, fetal heart rate, blood pressure, and pulse.

b. Observe closely for side effects, most frequently maternal hypotension and fetal bradycardia.

c. Provide emotional support for the patient and her partner.

d. Maintain appropriate emergency equipment for maternal hypotension or fetal bradycardia. The equipment includes oxygen with facemask, suction, airways, and I.V. fluids.

e. Monitor bladder status at least every 2 hours. The sensation to urinate is lost with some anesthetics. If the bladder is distended, a physician's order may be required for in and out catherization.

4-11. NURSING CARE FOR MATERNAL HYPOTENSION IN THE OBSTETRIC PATIENT

a. Position the patient on her left side. This relieves uterine pressure on the inferior vena cava and iliac veins and it increases oxygen supply to the fetus.

b. Administer oxygen per facemask, usually at 5 to 8 liters/minutes, as ordered.

c. Elevate the patient's legs.

d. Stay with the patient, do not leave her unattended.

e. Notify the Charge Nurse or physician immediately.

Continue with Exercises

EXERCISES, LESSON 4

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. at are the two sources of discomfort during childbirth?

   _____

   _____

2. To evaluate the degree of pain experienced by the patient during childbirth, what areas are observed?

   _____

   _____

   _____

   _____

   _____

   _____

3. Decreasing the intensity of pain and minimizing the degree to which the patient is bothered by pain are considered:

   _____

   _____

4. In providing comfort measures to the patient during childbirth, why is the side lying position preferred?

   _____

5. In minimizing the fear and pain and promoting positive family relationships, relaxation techniques includes breathing during contractions, concentration on the focal point, and effleurage to include the pelvic tilt and abdominal exercises, you are encouraging the use of:

_____

6. Analgesic medications taken during labor affects the fetus, mother, and:

_____

7. Analgesics are the most common form used in obstetrics today. They are:

_____

_____

_____

_____

8. _____ refers to a technique or medication that partially or completely eliminates sensation or feeling.

9. What are the two types of nerve-blocking anesthetics?

_____

_____

10. List the regional anesthetics used in childbirth.

_____

_____

_____

_____

11. Complete the following statements (nerve blocking anesthetics).

    a. _____ produces anesthesia only in the area where injected.

    b. An injection of a dilute local anesthetic into the paracervical nerve endings through the vagina is a _____ .

    c. An injection of anesthetic agent directly into the spinal column to cause loss of sensation below the injection site is known as a _____.

    d. A _____ is administered just prior to delivery.

    e. An injection of anesthetic agent in the peridural space through the sacral hiatus is known as a _____.

    f. An injection of anesthetic agent on top of the dura space through the 3rd and 4th or 5th lumbar space is known as a _____.

12. What two regional anesthetics require frequent observation and must be administered by a physician?

    _____

    _____

13. What are the disadvantages of using general anesthesia during childbirth?

    _____

    _____

14. What are the two most frequent side effects that may occur to the obstetric patient receiving anesthesia?

    _____

    _____

Check Your Answers on Next Page

SOLUTIONS, LESSON 4

1. Visceral discomfort.
   Perineal discomfort. (para 4-2)

2. What the mother says.
   Patient's response.
   Facial expression.
   Color of skin.
   Blood pressure, pulse, and respirations.
   Posture. (para 4-4)

3. Goals of nursing measures to minimize discomfort during childbirth. (para 4-5)

4. The side lying position is preferred because it increases placental flow. (para 4-6b(6))

5. Psychoprophylaxis. (para 4-6c)

6. Labor and delivery process. (para 4-6d)

7. Demerol ®.
   Morphine ®.
   Stadol ®.
   Nubain ®.
   Nisentil ®. (para 4-7a)

8. Anesthetic. (para 4-7b)

9. Local.
   Regional. (paras 4-8a and b)

10. Paracervical block.
    Pudendal block.
    Saddle block (low spinal).
    Caudal epidural.
    Lumbar epidural. (para 4-8b)

11. a. Local. (para 4-8a)
    b. Paracervical block. (para 4-8b(1))
    c. Saddle block (low spinal). (para 4-8b(3))
    d. Pudendal block. (para 4-8b(2))
    e. Caudal. (para 4-8b(4))
    f. Lumbar epidural. (para 4-8b(4))

12. Caudal and lumbal epidural. (para 4-8b(4)(e))

13. The patient is unable to participate.
    It can cause fetal anesthesia, respiratory depression, and possible anoxia.
    There is an increased risk of maternal aspiration.
    There is the possibility of hemorrhaging. (para 4-9b)

14. Maternal hypotension.
    Fetal bradycardia. (para 4-10b)

End of Lesson 4

LESSON ASSIGNMENT

LESSON 5	Special Situations in Labor and Delivery.
TEXT ASSIGNMENT	Paragraphs 5-1 through 5-11.
LESSON OBJECTIVES	After completing this lesson, you should be able to:

5-1. Identify descriptive statements that concerns the nine special situations in labor and delivery.

5-2. Identify the causes for dystocia and oversized babies.

5-3. Identify conditions that predispose a mother to preterm labor.

5-4. Identify the indications for the induction of labor.

5-5. Select descriptive statements that describe the four classifications of dystocia.

5-6. Identify the four complications that occur in the delivery of an oversized baby.

5-7. Select those characteristics that are used to assess a mother for an amniotic fluid embolism.

5-8. Identify the indications for a cesarean section.

5-9. Identify the indications for forceps delivery.

5-10. Identify the types of forceps.

5-11. Select the nursing interventions that are used when caring for patients with a special situation in labor and delivery.

SUGGESTION After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 5

SPECIAL SITUATIONS IN LABOR AND DELIVERY

5-1. GENERAL

Accurate assessment of the rapid changing status of the mother and her fetus is essential if the nursing and the medical care plan are to meet their needs. Although most labors and deliveries are routine, occasionally there may be a deviation from the norm. This lesson contains information that will help you in caring for a patient who has a special situation in labor and delivery. The special situations in labor and delivery are categorized as preterm labor, postterm labor, induction of labor, dystocia of labor, oversized babies, amniotic fluid embolism, multiple pregnancies, cesarean section, episiotomies, and forceps delivery.

5-2. PRETERM LABOR AND DELIVERY

Preterm birth is traumatic for both the parent and the child. The parents are faced with an unexpected emotional crisis as a result of the natural process of pregnancy and birth being altered, whereas, the infant is faced with adjustment to extrauterine existence before final readiness for the event. Parents and the infant who are experiencing the crisis of premature birth need the concerted support of all members of the health care team.

a. **Definition**. Preterm labor is labor that occurs prior to 38 weeks gestation. It may be spontaneous or medically induced.

b. **Conditions That Predispose to Preterm Labor**. There are certain factors or reasons that may increase a woman's chances of having premature labor, but the specific cause or causes of premature labor are not known. Sometimes a woman may have premature labor for no apparent reason. Nevertheless, it is important that you be familiar with the following conditions of a patient who may predispose to preterm labor:

(1) Spontaneous rupture of membranes.

(2) Cervical incompetency - weakness of the cervix.

(3) Uterine anomalies.

(4) Overdistended uterus caused by hydramnios or two or more fetuses.

(5) Anomalies of the products of conception.

(6) Faulty placentation - abruptio placentae, placenta previa.

(7) Retained intrauterine device.

(8) Fetal death.

(9) Serious maternal disease. This refers to a systemic disease in the mother, that when severe, may be due to serious hypoxia accompanying some diseases such as pneumonia and diseases with high fever.

(10) Unknown causes.

c. **Responses to Preterm Labor**.

(1) Once preterm labor is diagnosed, the patient and her obstetrician must decide if early delivery of the fetus is more advantageous for survival or is the fetus remaining in utero more advantageous for survival.

(2) Preterm labor is <u>not</u> interrupted if any of the following conditions are present:

(a) Labor is active and cervical dilation has progressed beyond 4 cm.

(b) There is severe bleeding.

(c) Gross fetal anomaly or anomalies is/are present.

(d) The fetus is already dead.

(e) There is fetal distress present.

(f) There are complications that contraindicate prolonging the pregnancy (e.g., severe maternal hypertension, ruptured membranes, intrauterine infection, and severe fetal intrauterine growth retardation).

d. **Nursing Interventions When Preterm Delivery is Imminent**.

(1) Prepare for delivery if interventions to arrest preterm labor fail.

(2) Inform the expectants parents of changes in the status of care. Many times the nature of emergencies in a labor and delivery area often allows time for brief explanations. Whenever possible, expectant parents should be given thorough explanations and emotional support.

<u>NOTE</u>: Parents should not be left alone if possible.

(3) Notify the nursery personnel and pediatrician when delivery is imminent.

(4) Assemble the resuscitation equipment and make sure it functions properly.

(5) Discourage the patient from bearing down if the presenting part is a head. Bearing down could cause damage to soft tissues. Preterm labor usually means a small fetus. Less cervical dilations and effacement are required due to the small size of the premature fetus. Administration of medications during labor is kept to a minimum because the infant has an immature system that has difficulty metabolizing medication. Medications have an increased effect on the fetus. Local anesthesia is used for delivery rather than general anesthesia. This again is due to the increased effect that general anesthesia has on the infant and the infant's decreased ability to metabolize the anesthesia and to get it out of its system after delivery. Parents should be informed about these decisions.

e. **Delivery of the Preterm Infant**.

(1) Perform only those procedures that are absolutely necessary. Injury can occur easily and infection is of primary concern.

(2) Establish respirations then move the infant to a warm and humid environment that contains adequate oxygen. Position the head slightly down to allow for tracheal drainage and then position the head flat. Place the infant on its back with the shoulders elevated slightly so the abdomen is lower than the thorax. Ensure that the airway is kept clear. Place a folded towel or diaper under the infant's shoulders and back. This allows for expansion of the thoracic cavity.

(3) Introduce the newborn briefly to the parents.

(4) Transfer the newborn to the special care nursery as soon as possible.

5-3. POSTTERM PREGNANCY AND DELIVERY

a. **Definition**. Postterm pregnancy is any pregnancy that goes beyond 42 weeks gestation.

b. **Nursing Interventions in the Delivery of the Postterm Infant**

(1) Notify and have a pediatrician present for delivery. The infant requires immediate assessment of his condition. In addition, the infant may need immediate intervention to establish adequate respiratory function.

(2) Perform tracheal suctioning immediately at delivery. In postterm pregnancy, the amniotic fluid is frequently thick since it decreases after 38 weeks. The infant frequently has a bowel movement (meconium) prior to or during labor due to stress. This fluid tends to clog the air passages and irritates the lungs when aspirated. Aspirated meconium-stained amniotic fluid can lead to meconium aspirations syndrome or pneumonia.

(3) Evaluate the newborn for hypoglycemia via dextrostix. The infant has been forced to use up energy stores due to prolonged pregnancy. Blood sugar less than 45 mg/dl is low and requires immediate oral glucose feedings, or IV glucose feeding followed by frequent formula feedings to prevent subsequent drops.

(4) Give special care to the infant to prevent loss of body heat. Place a hat on his head, keep him wrapped; then, and place him in a warm incubator. The postterm infant is subject to cold stress because of low amounts of subcutaneous fat and large body surface.

5-4. FACTS ABOUT THE INDUCTION OF LABOR

a. **Definition**. Induction of labor is the deliberate initiation of uterine contractions prior to their spontaneous onset and after the period of viability.

b. **Indications for Induction**.

(1) When continuation of the pregnancy would affect maternal or fetal well-being.

(2) When fetal well-being would be compromised by remaining longer in the uterus. Possible problems could be:

(a) Intrauterine growth retardation (IUGR).

(b) Decreased placental circulation (evidenced by late decelerations).

(3) When done electively (occasionally).

(a) Induction may be done for the convenience of the physician or patient due to the patient being a long distance from the hospital, history of rapid labor, and term pregnancy with a history of herpes but two negatives cultures at present.

(b) This procedure is not strongly supported due to risks of the medications, possibility of delivery of a preterm infant, and the possibility of cesarean section due to failure of progress.

(4) When complications of pregnancy are present that may affect the fetus. The complications are diabetes, hypertensive disease, hemolytic disease, postmaturity, and premature rupture of membranes if term and no labor has started after twelve hours.

c. **Techniques Used for Induction**.

(1) Enema. An enema may stimulate contractions if the patient is ready.

(2) Oxytocin induction. Pitocin® or Syntocinon® may be used and administered by slow intravenous drip.

(3) Vaginal gel. Porstaglandin E-2 vaginal gel has been used in some cases.

d. **Nursing Interventions**.

(1) Never leave the patient alone. There may be potential hazards to the patient and fetus during oxytocin administration. Check the IV rate of flow frequently to ensure it is accurate.

(2) Alleviate fears of the mother that induction may harm the fetus. The patient needs reassurance that her contractions will not differ in their effects from those of the full-term patient. Instruct the patient in breathing techniques. This will help in relieving discomfort.

5-5. DYSTOCIA OF LABOR AND CAUSATIVE REASONS

a. **Description**.

(1) Dystocia of labor refers to labor that is difficult due to mechanical and functional factors.

(2) When dystocia is present, the following factors tend to interfere with the ultimate goal of labor (dilation of the cervix and pushing the fetus through the birth canal into the outside world) which is caused by deviations of the normal interrelationships between any of the five Ps of labor.

(a) Passage-bones and soft tissue of the birth canal.

(b) Power-uterine contractions.

(c) Passenger-the fetus, its size, presentation and position, and anomalies.

(d) Placenta-position, time, and mode of expulsion.

(e) Psyche-emotional response of the woman to labor.

(3) The interrelationships of these five factors determine the pattern and progress of labor.

b. **Classification of Dystocia**.

(1) Pelvic dystocia. This occurs when there is a significant shortening of the internal diameters of the bony pelvis.

(2) Soft tissue dystocia. This is caused by an obstruction of the birth passage by an anatomic abnormality other than that of the bony pelvis. Those abnormalities may be tumors, injuries that prevent dilatation, and congenital anomalies (e.g., bicornate uterus).

(3) Fetal dystocia. This refers to conditions that involve the passenger (fetus) that can delay and complicate the process of labor. The conditions may be excessive size of the fetus, fetal anomaly (e.g., hydrocephalus, conjoined twins, or gross ascites), or fetal malpresentation such as a breech presentation.

(4) Uterine dystocia. This is an abnormality of the contractile pattern of the uterine muscles that prevents normal progress in labor. The contractions may be too week, too short, too irregular, or too infrequent. Labor may also be extremely forceful, rapid, or traumatic.

c. **Nursing Intervention**.

(1) Continue monitoring uterine contractions and the FHTs.

(2) Keep the patient informed of the progress.

(3) Instruct the patient in proper breathing techniques to decrease discomfort.

(4) Allow the patient to ventilate feelings and frustrations.

(5) Monitor the patient's bladder status. The bladder should be kept empty to provide as much space as possible for descent of the fetal head.

5-6. OVERSIZED BABIES AND THEIR DELIVERY

a. **Description**. An oversized baby is an infant that weighs more than 10 pounds (4500 grams). The infant may be classified as large for gestational age (LGA). Most oversized babies are boys. Usually, causes of oversized babies are maternal diabetes, postterm pregnancy, and inheritance from one or both parents who are large.

b. **Complications**.

(1) Shoulder dystocia. Wide shoulders of the fetus are likely to be a problem at the time of delivery. The fetus head may deliver, but the shoulders are too large for the pelvic inlet.

(2) Trauma to the birth canal may result during delivery due to the size of the infant. The trauma may be lacerations of the vagina or of the perineum.

(3) Trauma to the fetus as a result of pressure placed on it by the delivery process (especially the head and neck), may cause:

(a) Damage to the brachial plexus (nerve injury). This includes a network of lower cervical and upper dorsal spinal nerves, supply arm, forearm, and hand, may have flaccid arm, hand, forearm, and hand rotates inward. Damage to the brachial plexus may be referred to as Erb's Palsy or Erb-Duchenne diseases. Damage is not usually permanent.

(b) Dislocation of the cervical vertebrae as a result of traction to get the infant out.

(c) Fracture of the clavicle. This is the most common problem and is done during delivery of the shoulders.

(d) Cerebral hemorrhage (intracranial). This is due to repeated pounding on the pelvis.

c. **Medical Interventions for Delivery of the Oversized Infant**.

(1) Assessment of feto-pelvic size to determine if vaginal delivery is possible.

(2) Monitor the patient's progress closely.

(3) Perform cesarean section if the infant fails to descend.

(4) Fracture, intentionally, the humerus or clavicle to decrease the size of the fetus shoulder girdle and facilitate delivery. This is done if shoulder dystocia results during vaginal delivery. The mother may flex her thighs on her abdomen to enlarge her maternal pelvis inlet. Suprapubic pressure may be applied by someone to collapse the diameter of the shoulders.

d. **Nursing Interventions**.

(1) Monitor progress of the labor and the FHT's closely for any signs of fetal distress.

(2) Keep the mother and father informed of the progress.

(3) Give emotional support to the parents.

5-7. AMNIOTIC FLUID EMBOLISM DURING PREGNANCY OR DELIVERY

a. **Description**. Amniotic fluid embolism refers to the accidental infusion of amniotic fluid into the mother's bloodstream under pressure from the contracting uterus. The amniotic fluid enters the maternal blood sinuses through defects in the membranes, after membranes have ruptured or after partial premature separation of the placenta has occurred. Solid particles suspended in the amniotic fluid enter the maternal circulation (this may be fetal skin cells carried to the lungs as emboli) and produces dramatic clinical symptoms of pulmonary embolism. This is a common cause of death among mothers who die suddenly during labor.

b. **Assessment for Amniotic Fluid Embolism**. Amniotic fluid embolism is characterized by sudden dyspnea, chest pain, tachycardia, hypotension, and typical bluish, gray seen in patients with a pulmonary embolism. Death may occur within minutes without immediate intervention. Death may be maternal or fetal.

c. **Medical and Nursing Interventions for Amniotic Fluid Embolism**.

(1) Give immediate and vigorous treatment.

(2) Give oxygen by face mask.

(3) Maintain normal blood volume through administration of plasma and intravenous fluids.

(4) Prevent development of disseminated intravascular coagulation (DIC). Serious complications can occur.

(5) Administer whole blood and fibrinogen.

(6) Monitor the patient's vital signs.

(7) Deliver the fetus as soon as possible.

NOTE: Disseminated intravascular coagulation is an acute abnormal stimulation of the normal coagulation process. The normal clotting process is a balance between clot formation and dissolution. In DIC, the balance is disrupted. The abnormal stimulation of coagulation results in widespread thrombi formation that eventually exhausts clotting factors and platelets and activates the process that dissolves fibrogen. Major bleeding results.

5-8. FACTS ABOUT MULTIPLE PREGNANCY AND DELIVERY

a. **Description**.

(1) Multiple pregnancy is the presence of two or more fetuses in the uterus at the same time.

(2) High-risk conditions may be associated with and include premature delivery, hemorrhage, hypertensive disorders, abnormal presentation and position, hydramnios (an excess of amniotic fluid), and uterine dysfunction.

(3) Uncomfortable symptoms experienced by the mother during the last trimester are the same as for the mother with a single fetus. However, the symptoms occur earlier and are more intense. The symptoms are:

(a) Heaviness of the lower abdomen.

(b) Back pains.

(c) Swelling of the feet and ankles.

(d) Difficulty in sleeping that is due to abdominal distention.

(e) Woman tires easily.

b. **Labor and Delivery Process**.

(1) The first stage of labor for the mother is essentially the same as for the woman with a single fetus. Effacement and dilatation occur the same if there is an adequate labor pattern.

(2) Possible complications during labor and delivery include the following.

(a) Possible prolapsed cord. Babies of multiple births tend to be smaller than single fetus and may not fill the pelvis completely. The cord may drop when the membranes rupture.

(b) Possible fetal respiratory distress that is due to analgesia. Analgesia is administered very conservatively. The infant's size normally prevents them form metabolizing analgesia from their systems prior to birth. Withholding it avoids respiratory difficulties following delivery.

(c) Entanglement of fetuses during delivery. Presentation of all fetuses should be known prior to delivery. If the first fetus is not vertex, cesarean section is normally done. This prevents the first fetus from becoming entangled with other fetuses. More than two fetuses indicate cesarean section for control and quick access to the infants.

c. **Nursing Interventions**.

(1) Monitor the patient and fetuses continuously. Internal monitoring is applied to the presenting fetus. External monitoring is applied to the second fetus. Additional fetuses should be monitored at least every 15 minutes during the first stage with a Doppler and recorded. The mother's vital signs should be checked and recorded frequently.

(2) Start intravenous infusion with at least an 18-gauge as soon as the patient presents to labor and delivery.

(3) Type and cross-match the patient for blood (at least 2 units) on admission for possible administration or as stated in the unit SOP.

(4) Notify appropriate personnel to be present for actual delivery.

(a) An anesthesiologist or anesthetist should be notified in case an emergency cesarean becomes necessary. Anesthesia may be required for the delivery of the subsequent fetuses.

(b) A physician and a nurse team should be notified for each fetus. The nurse should be skilled in resuscitative measures. The physician should be a pediatrician.

(5) Have enough equipment available to accommodate the number of fetuses to be delivered.

(6) Identify and care for each fetus immediately at delivery.

(a) The first fetus born is **A** or twin **I**.

(b) The second fetus is **B** or twin **II**. and so on.

(c) Tag the infant prior to leaving the delivery room. **Do not depend on memory**.

(7) Keep the mother informed of each infant's status.

(a) Identify the sex of the infant.

(b) Allow the mother to see the infant prior to being transferred from the delivery room if at all possible.

(8) Administer Pitocin® as soon as all placentas are delivered and upon physician's order. Massage the fundus to stimulate contractility. Excessive blood loss is common with multiple pregnancy during the third stage of labor.

5-9. FACTS RELATED TO CESAREAN SECTION DELIVERY

a. **Definition**. Cesarean section refers to a surgical incision made into the abdomen and uterus to deliver the fetus (see figure 5-1).

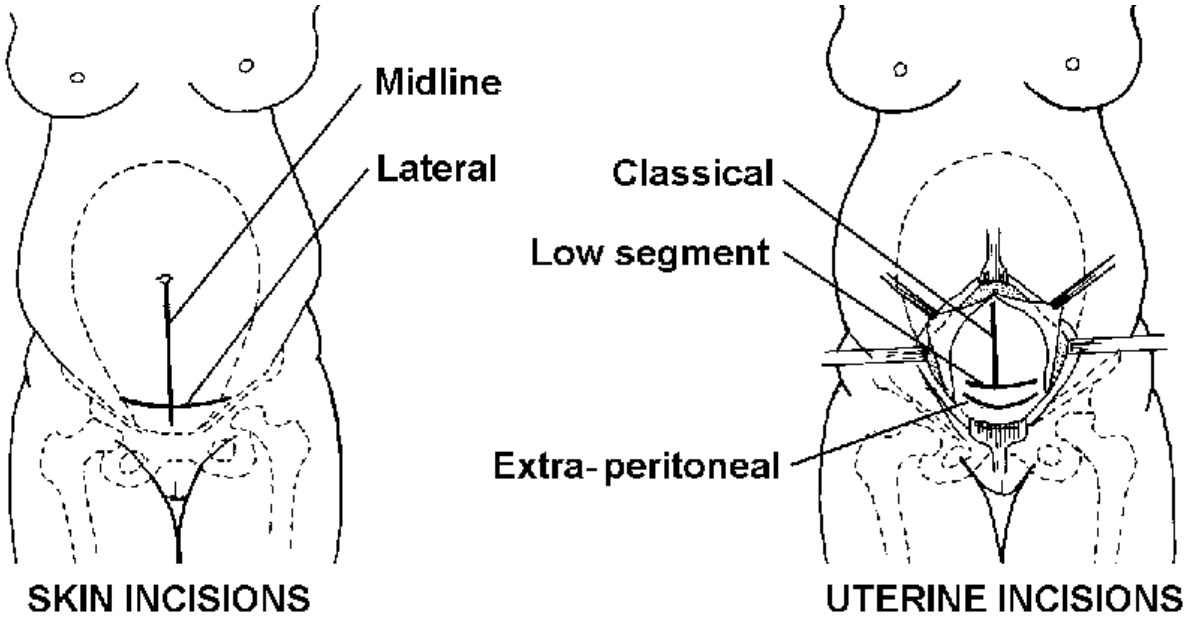


Figure 5-1. Cesarean birth incisions.

b. **Indications for a Cesarean Section**.

(1) A patient who is unable to deliver vaginally without jeopardizing her life or health or jeopardizing the health of the fetus.

(2) If there is a disproportion between the size of the infant and the mother's bony birth canal.

(3) If there is previous classical cesarean section or some other extensive uterine or vaginal surgery.

(4) In some women with severe preeclampsia or eclampsia.

(5) In some women with placenta previa or placenta abruption.

(6) When there is fetal distress or impending fetal distress.

(7) In some malpresentation (for example, transverse lie, primipara breech).

c. **Nursing Interventions**.

(1) Perform preoperative care. Cesarean section is classified as "Major Surgery." Care is the same as for any abdominal surgery unless an emergency exists or labor has started. Insert a retention catheter prior to surgery. This keeps the bladder empty, prevents trauma to the bladder, and prevents obstruction of the surgical field from a full bladder. Have oxytocin available for administration after delivery.

(2) Perform postoperative care. Care is the same as for any abdominal surgery. Allow the mother to breast feed as soon as she wishes.

(3) Care for the newborn. Have a pediatrician present. A warm crib and resuscitation equipment should be available. Respiratory distress tends to be higher in infants delivered this way. Infants born early do not have a change to adjust to atmospheric pressure changes. Mucous is not expressed from the lungs since the infant did not descent through the birth canal.

5-10. FACTS ABOUT EPISIOTOMIES

a. **Definition**. Episiotomy is an incision into the perineum made to facilitate delivery.

b. **Types of Episiotomies**

See figure 5-2 for illustrations of the types of episiotomies.

(1) Median or midline episiotomy. An incision is made in the midline of the perineum. The advantages of a median or midline episiotomy are that they are easy to repair, faulty healing is rare, there is less pain during the postpartal period, there is less blood loss, and the anatomic end results almost always excellent.

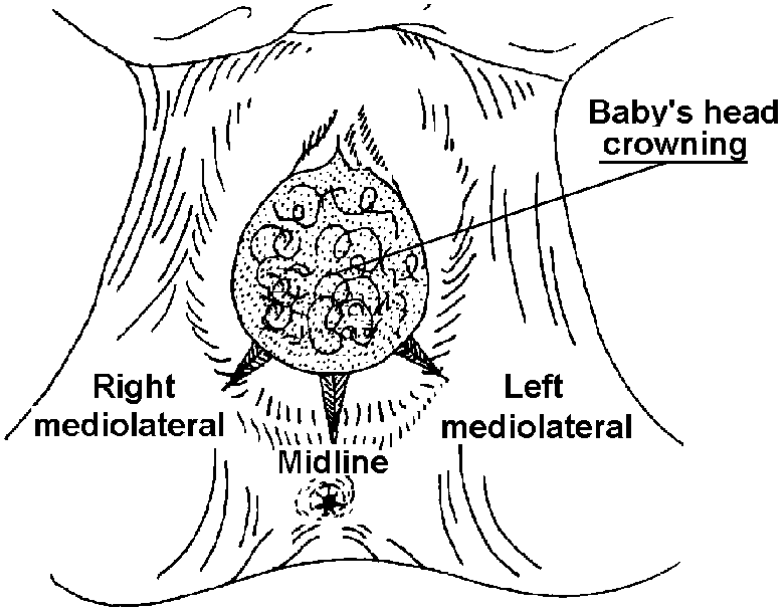


Figure 5-2. Types of episiotomies.

(2) Mediolateral episiotomy. An incision is made in the midline but directed to the right or left. The advantages of a mediolateral episiotomy are that there is less tearing beyond the incision and the incision can be directed away from the rectum. The

disadvantages are that there is greater blood loss, faulty healing is more common, there is more perineal discomfort, and they are more difficult to repair.

c. **Reasons for Episiotomy**. An episiotomy results in a clean surgical cut instead of a ragged tear, it minimizes pressure on the fetal head, and shortens the second stage of labor.

d. **Repair**. The obstetrician sutures the cut after delivery of the fetus and the placenta. There is usually slight blood loss because pressure of the presenting part constricts the cut edges and keeps bleeding to a minimum.

e. **Nursing Intervention**.

(1) Observe incision for signs of infection (for example, redness, swelling, unusual discharge).

(2) Instruct the patient to change her perineal pad each time she uses the toilet.

(3) Teach the mother to do perineal cleansing each time she uses the bathroom.

(4) Assist the mother to use the Sitz bath as ordered.

(5) Use a perineal lamp (usually a gooseneck lamp) to improve circulation, promote healing, and ease discomfort. The lamp should not be used too early, otherwise bleeding may occur. Wait about 12 hours after delivery. The lamp should be placed no less than 18 inches from the perineum. Use a 25 to 40 watt bulb. The lamp can be used several times a day for 20-minute intervals. Drape the patient legs to provide maximum privacy.

(6) Offer local anesthetics (nupercainal ointment, tucks, witch hazel compresses) as ordered.

5-11. FACTS ABOUT FORCEPS DELIVERY

Forceps are used to assist in labor and delivery. Forceps delivery is considered an operative obstetric procedure. The commonly used forceps have a cephalic curve shaped similarly to that of the fetal head. A pelvic curve of the blades conforms to the pelvic axis (see figure 5-3). The blades are joined by a pin, screw, or grove arrangement. These locks prevent the forceps from compressing the fetal skull.

a. **Indications for Use**.

(1) Maternal. To shorten the second stage in dystocia, when the patient's expulsive efforts (inability to push) are deficient (for example, she is tired or has been given spinal anesthesia), and when the patient is endangered (for example, cardiac decompensation).

(2) Fetal. To rescue a jeopardized fetus (for example, premature labor or fetal distress close to delivery).

b. **Complications of Forceps Delivery**.

(1) Maternal.

(a) Lacerations of the vagina and cervix, predisposing to hemorrhage and infection.

(b) Rupture of the uterus.

(c) Injury to the bladder or rectum.

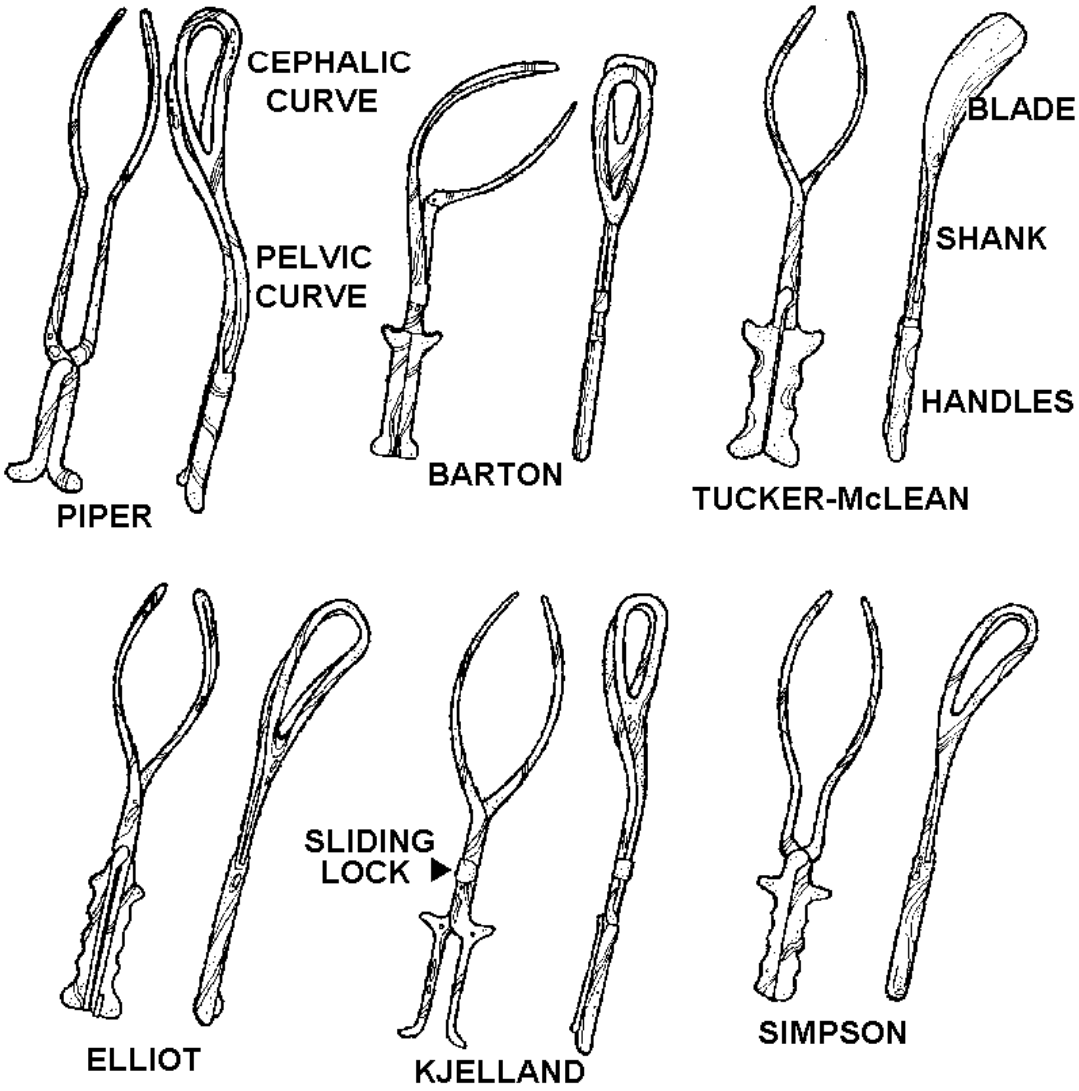


Figure 5-3. Types of forceps.

(2) Fetal.

(a) Cephalohohematoma.

(b) Brain damage and intracranial hemorrhage.

(c) Skull fractures.

(d) Facial paralysis.

(e) Cord compression.

c. **Conditions for Forceps Delivery**. The following conditions must occur for successful forceps delivery.

(1) Fully dilated cervix. Severe lacerations and hemorrhage may ensue if a rim of cervical tissue remains.

(2) Head engaged. The extraction of a mature fetus with a "high" (unengaged) head usually is disastrous.

(3) Vertex presentation or face presentation. Other presentations require wider-than-average pelvic diameters.

(4) Membranes ruptured. This will ensure a firm grasp of the forceps on the fetal head.

(5) No cephalopelvic disproportion. If there is engagement, there must be no outlet contracture or gross sacral deformity.

(6) Empty bladder and bowel. This will avoid laceration and fistula formation.

d. **Levels of Forceps Application**. The station of the fetal head determines the level of forceps application and, generally, the relative difficulty to be expected in forceps operations.

(1) High forceps. The biparietal diameter of the vertex is above the ischial spines (the head has not yet engaged) when the forceps are applied. High forceps delivery is an exceedingly difficulty and dangerous operation for both patient and fetus and is rarely done.

(2) Midforceps. The vertex is at the ischial spines, almost to the ischial tuberosities on application of the forceps. The delivery often is difficult, depending on the size of the vertex, its position, and the pelvic architecture and diameters. A cesarean birth is preferred to a potentially difficult midforceps delivery.

(3) Outlet (low) forceps. Outlet or low forceps is used when the fetal head is on the perineal floor (visible or almost so) and internal rotation may have already occurred, so that the fetal head lies in a direct anteroposterior position.

e. **Nursing Interventions**.

(1) Obtains forceps designated by the physician.

(2) Checks, reports, and records the fetal heart rate before forceps are applied.

(3) Informs the patient that the forceps blades fit like two tablespoons around an egg. The blades come over the fetus ears.

(4) Rechecks, reports, and records the fetal heart rate again before traction is applied after application of the forceps. Compression of the cord between the fetal head and the forceps would cause a drop in fetal heart rate. The physician would then remove and reapply the forceps.

(5) Give support to the patient.

(6) Observe for signs and symptoms of complications.

(7) Assess the newborn for indications of injury.

Continue with Exercises

EXERCISES, LESSON 5

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. List six conditions that could increase a pregnant woman chances of having premature labor.

   _____

   _____

   _____

   _____

   _____

   _____

2. Assemble resuscitation equipment and make sure it functions properly is one of the nursing interventions when:

   a. Amniotic fluid enters into an opened maternal blood sinus.

   b. Preterm delivery is imminent.

   c. Multiple fetuses are known.

   d. C-sections are performed.

3. List the four classifications of dystocia.

   _____ _____

   _____ _____

4. What type of episiotomy is made on the midline but directed to the right or left?

_____

_____

fOR EXERCISES 5 THROUGH 13. Match the terms in Column A with the correct definition or statement as listed in Column B. Place the letter of the correct answer in the space provided to the left of Column A.

_____

COLUMN A	**COLUMN B**
____ 5. Induction of labor.	a. Surgical incision made into the abdomen and uterus to deliver the fetus.
____ 6. Oversized baby.	b. Labor that is difficult which is due to mechanical and functional factors.
____ 7. Episiotomy.	c. Labor that occurs prior to 38 weeks gestation.
____ 8. Multiple pregnancy.	d. Significant shortening of the internal diameters of the bony pelvis.
____ 9. Post term labor.	e. Deliberate initiation of uterine contractions prior to their spontaneous onset and after the period of viability.
____ 10. Dystocia	f. An incision into the perineum made to facilitate delivery.
____ 11. Preterm labor.	g. Pregnancy that goes beyond 42 weeks gestation.
____ 12. Pelvic dystocia.	h. An infant that weighs more than 4500 grams.
____ 13. Cesarean section.	i. Two or more fetuses in the uterus at the same time.

14. Complication associated with oversized babies and their delivery are given below. Write the type of complication described in the blank before the description.

    a. _____ -- the fetus head may deliver, but the shoulders are too large for the pelvic inlet.

    b. _____ -- possible lacerations of the vagina or of the perineum.

    c. _____ dislocation of the fetus cervical vertebrae or fracture of the clavicle.

15. List the special situations in labor and delivery.

_____

_____

_____

_____

_____

_____

_____

_____

_____

FOR ITEMS 16 THROUGH 27. The following statements/phrases may be true or false. Indicate the correct answer by circling the "T" for true and "F" for false.

16.	Preterm labor is not interrupted if there is severe bleeding or if the fetus is already dead.	T	F
17.	The amniotic fluid is frequently thin in post term pregnancy, therefore, tracheal suctioning immediately at delivery is not performed.	T	F
18.	An enema may be used to stimulate contractions if the patient is ready to deliver.	T	F
19.	Most oversized babies are girls.	T	F
20.	A Cesarean section is performed if an oversized fetus fails to descend.	T	F
21.	A possible prolapsed cord is considered a possible complication during labor and delivery of multiple births.	T	F
22.	Only on physician and on nurse should be notified to assist in multiple births.	T	F
23.	The physician sutures the episiotomy (incision) after delivery of the fetus.	T	F
24.	A Cesarean section is classified as major surgery.	T	F
25.	Forceps delivery aids in shortening the second stage in dystocia.	T	F
26.	The fetal head must be engaged for forceps delivery.	T	F
27.	Midforceps delivery is an easy forceps delivery.	T	F

Check Your Answers on Next Page

SOLUTIONS, LESSON 5

1. Any six of the following conditions:

   Spontaneous rupture of membranes.
   Cervical incompetency.
   Uterine anomalies.
   Overdistended uterus caused by hydramnios or two or more fetuses.
   Anomalties of the products of conception.
   Faulty placentation.
   Retained intrauterine device.
   Fetal death.
   Serious maternal disease.
   Unknown causes. (para 5-2b)

2. b (para 5-2d(4))

3. Pelvic.
   Soft tissue.
   Fetal.
   Uterine. (para 5-5b)

4. Mediolateral. (para 5-10b(2))

5. e. (para 5-4a)

6. h. (para 5-6a)

7. f. (para 5-10a)

8. l. (para 5-8a)

9. g. (para 5-3a)

10. b. (para 5-5a)

11. c. (para 5-2a)

12. d. (para 5-5b(1))

13. a. (para 5-9a)

14. Shoulder dystocia.
    Trauma to the birth canal.
    Trauma to the fetus. (para 5-6b(1),(2),(3))

15. Preterm labor.
Post term labor.
Induction of labor.
Dystocia of labor.
Oversized babies.
Amniotic fluid embolism.
Multiple pregnancies.
Cesarean section.
Episiotomies. (para 5-1)

16. T (para 5-2c(2))

17. F (para 5-3b(2)(a))

18. T (para 5-4c(1))

19. F (para 5-6a)

20. T (para 5-6c(3))

21. T (para 5-8c(4)(b))

22. F (para 5-8c(4)(b))

23. F (para 5-10d)

24. T (para 5-9c(1))

25. T (para 5-11a(1)(a))

26. T (para 5-11b(2))

27. F (para 5-11c(2))

End of Lesson 5

LESSON ASSIGNMENT

LESSON 6 The Postpartal Patient.

TEXT ASSIGNMENT Paragraphs 6-1 through 6-20.

LESSON OBJECTIVES After completing this lesson, you should be able to:

6-1. Identify terms and definitions that refer to the postpartal patient.

6-2. Identify changes in the female's reproductive, urinary, and cardiovascular systems following delivery.

6-3. Identify nursing measures that are taken when caring for a patient with pelvic problems following delivery

6-4. Identify the height of the fundus at certain time periods following delivery.

6-5. Identify facts that pertain to lochia flow, bladder and urinary distention, ovulation and menstruation, and breasts and lactation following delivery.

6-6. Identify descriptive phrases which relates to the restorative period and the responsibilities of the nurse given the patient during the restorative period.

6-7. Identify specific causes of postpartal blues; manifestations experienced by the mother having postpartal blues, and the responsibilities of the nurse caring for the patient having postpartal blues.

6-8. Identify the feelings a mother may experience secondary to her depression.

6-9. Identify the responses seen in negative and positive bonding.

6-10. Identify the nursing needs of the single mother and the nursing care given to the single mother.

6-11. Identify the main causes of postpartal hemorrhage.

6-12. Identify the four main factors causing uterine atony, the signs and symptoms of uterine atony, and the nursing care given to a patient with uterine atony.

6-13. Identify the common sites and causes of postpartal lacerations and the nursing interventions given to a patient who has a laceration.

6-14. Identify signs, symptoms, and treatments for retained placenta fragments, and the nursing interventions given to a patient who has retained placenta fragments.

6-15. Identify specific causes and signs and symptoms, medical treatment, and nursing interventions for the patient who has a hematoma.

6-16. Identify specific causes, signs and symptoms of uterine subinvolution, and the medical treatment and nursing interventions given a patient who has uterine subinvolution.

6-17. Identify predisposing factors of puerperal infections and measures used to prevent the spread of puerperal infections in the hospital.

6-18. Identify two medical treatments and nursing interventions used in the care of a patient with a puerperal infection.

6-19. Identify the signs and symptoms of thrombophlebitis, the medical treatment and the nursing interventions used to care for a patient having thrombophlebitis.

6-20. Identify signs and symptoms of pulmonary embolus, the treatments, and nursing care given to a patient with a pulmonary embolus.

6-21. Identify the signs and symptoms of mastitis, the treatment, and nursing interventions when caring for a patient with mastitis.

6-22. Identify the nursing care given a patient who is having a cesarean delivery.

6-23. Identify six precipitating factors, signs and symptoms of postpartal, and the treatment given a patient suffering from postpartal psychosis.

6-24. Identify the nursing needs of the parents who have a severely handicapped or dead child.

SUGGESTION

After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 6

Section I. CHANGES OF THE POSTPARTAL PATIENT

6-1. GENERAL

The first six weeks following the birth of a baby is known as the postpartum period. During this period the reproductive organs of the mother return to their prepregnant state. There are marked anatomic and physiologic changes as the physiologic processes that are designed to accommodate pregnancy are revised. In caring for a patient during the postpartal period, the nurse must have a good understanding of the physiologic and psychological adaptations that occur during this time. With this knowledge and understanding the nurse is able to recognize any abnormal findings and to intervene as necessary.

6-2. CHANGES IN THE REPRODUCTIVE SYSTEM FOLLOWING DELIVERY

a. **The Uterus**.

(1) Major changes in the uterus. Immediately after the placenta and membranes are delivered, the placenta site is elevated, irregular, and partially obliterated by vascular constriction and thrombosis. In other words, the placental attachment site is sealed in order to prevent bleeding. The uterus gradually returns to its approximate prepregnant size. This is accomplished by a decrease in the size of the individual myometrial cells and is usually accomplished by 4 to 6 weeks postpartum. The process is referred to as uterine involution. The uterine size usually increases slightly after each pregnancy. A soft and boggy uterus, due to relaxation, requires immediate massage until it is contracted again. This is done to stop bleeding. The height of the uterus after delivery can be used to measure the process of uterine involution while the mother is hospitalized. See figure 6-1 to view the following changes of the uterus:

(a) Immediately after delivery- idway between the umbilicus and symphysis publis.

(b) Twelve hours after delivery-above the umbilicus.

(c) After that - the fundus descends about one fingerbreadth every 24 hours.

(d) After the tenth day of postpartum--the uterus should not be palpable abdominally.

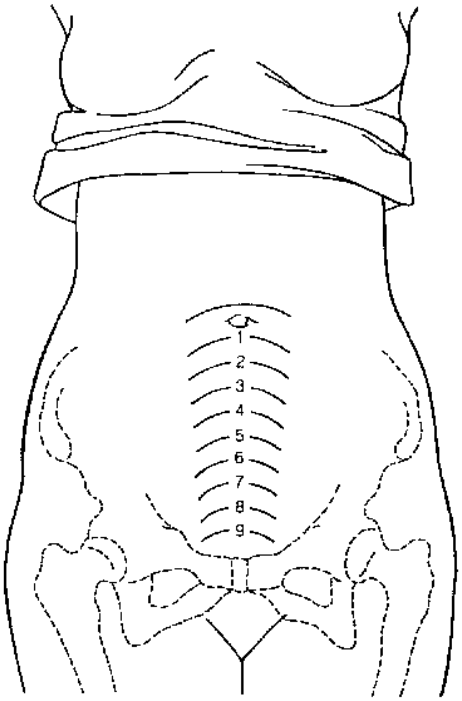


Figure 6-1. Height of the uterus after delivery.

(2) Afterpains. Afterpains are referred to as uterine contractions which continue following delivery, but occur less frequently than during labor and have an irregular pattern. Periodic relaxations add contractions. This is common and causes the afterpains for multiparas. They may last two to three days. Breast-feeding intensifies the afterpains. This is due to oxytocin being released by the posterior pituitary in response to stimulation of the nipple. Nursing measures used to relieve afterpains are as follows:

(a) Have the mother to assume a prone position.

(b) Have the mother to place a hot water bottle on her abdomen.

(c) Have the mother to void often to keep the bladder empty.

(d) Inform the mother to drink hot liquid, this will help to ease the pain.

(e) Give analgesics per physician's order.

b. **Lochia Flow**. One of the most unique capabilities of the uterus is its ability to rid itself of the debris remaining after delivery. This process is known as lochia flow. This is the vaginal discharge during the puerperium consisting of blood, tissue, and mucous. It may last up to six weeks after delivery. It is important for the nurse, as well as the patient, to be concerned with the following facts about lochia flow:

(1) Types of lochia (in order of occurrence).

(a) Lochia rubra-a red, distinctly blood-tinged vaginal flow that follows delivery. It lasts from two to four days after delivery.

(b) Lochia serosa-a serous, pinkish brown, watery vaginal discharge that follows lochia rubra. It lasts until about the 10th day after delivery.

(c) Lochia alba-a thin, yellowish to white, vaginal discharge that follows lochia serosa on about the 10th post delivery day. It may last from the end of the third to the sixth post delivery week.

(2) Lochia with a foul-smell or a green-tinge may indicate infection.

(3) Lochia clots whereas normal menstrual flow does not.

(4) Normal lochia flow should stop within three to four weeks postpartum.

(5) An increase in lochia flow may indicate a retained placenta or a patient who is not getting enough rest.

(6) Lochia flow is slightly heavier after breast-feeding, which is due to the release of oxytocin. Oxytocin causes the uterus to contract.

c. **Changes in the Cervix.** Initially, the cervix appears soft and edematous and has little tone. Multiple small lacerations may be seen. The cervix constricts rapidly and regains its shape by the end of the first week. Then, it is firm and thicker. The external os is contracted, only about one cm dilated. The cervix is healed by the fourth to sixth week after delivery. The extended os will assume a typical transverse slit of a parous woman.

d. **Changes in the Vagina**. Initially, the vagina is swollen and has poor tone following vaginal delivery. It remains distensible, regains its tone and returns to its original size by the fourth to sixth week of the postpartal period. The patient can help to improve tone and contractibility of the vaginal orifice by performing the Kegel's exercise (perineal tightening). Lacerations resulting from childbirth heal completely.

e. **Changes in the Perineum**. Initially, swelling and tenderness as a result of childbearing is present. Bruising and rupture of blood vessels are usually evident. By the fourth to sixth week postpartum, the episiotomy or laceration is usually evident. There is no more swelling and tenderness in the perineum area.

6-3. CHANGES IN THE CARDIOVASCULAR SYSTEM FOLLOWING DELIVERY

a. **Blood Volume**. Initially, there is a 15 to 30 percent increase in circulating blood volume the first 20 days of postpartum. This results from the elimination of

placental circulation and an increase in venous return. The increase is responsible for profound diuresis in early postpartum and a fall in hematocrit. This is why early postpartum time is the greatest risk for heart failure in patients with cardiac disease or limited cardiac reserve.

b. **Hematocrit**. The hematocrit drops because of blood loss during actual delivery. It usually rises by the third to seventh postpartum day unless substantial blood loss has occurred. Normal blood loss is about 250cc for vaginal delivery. This varies considerably. Blood loss must be greater than 500cc to be considered hemorrhage.

6-4. FACTS ABOUT THE URINARY SYSTEM FOLLOWING DELIVERY

The bladder mucosa shows varying degrees of edema and hyperemia, with diminished bladder tone after delivery. This results in decreased sensation to increased pressure, increased capacity, overdistention with overflow incontinence, and incomplete emptying of the bladder. Nursing care must include careful monitoring of the condition of the bladder. Distention and urinary retention are common occurrences and can cause discomfort as well as predispose a patient to infection, uterine atony and heavy bleeding, and may cause the patient's blood pressure to increase. With adequate emptying of the bladder, tone is usually restored within five to seven days.

6-5. FACTS ABOUT OVULATION AND MENSTRUATION FOLLOWING DELIVERY

Amenorrhea (cessation of menstruation) helps the body to conserve body fluids. Reestablishment of ovulation and menstruation is influenced by whether the mother is breast-feeding or not. Ovulation is delayed in direct proportion to the amount and length of time the baby is breast-fed. The absence of menstruation in a breast-feeding mother does not necessarily indicate absence of ovulation. Breast-feeding is <u>not</u> a means of birth control; contraceptives should be used.

6-6. FACTS ABOUT BREASTS AND LACTATION FOLLOWING DELIVERY

The concentrations of hormones that stimulated breast development during pregnancy decreases promptly after delivery. The time it takes for the return of these hormones to prepregnancy levels is determined in part by whether the mother breast-feds her infant.

a. **Milk**. Does not appear until three or four days after delivery.

b. **Colostrum**. This is the watery prolactations secretion that is first evident during the second trimester. It is secreted for the first several days after delivery in increasing amounts. Characteristics of colostrum are as follows:

(1) Thick, yellow fluid during pregnancy which changes to thin before delivery.

(2) Higher in protein and inorganic salts than breast milk.

(3) Lower in fats and carbohydrates than breast milk.

(4) Contains high levels of antibodies, which protect the infant against enteric infections.

(5) Nutritive value is lower than that of breast milk.

(6) Acts as a laxative for the newborn.

c. **Lactation**.

(1) As previously mentioned, breast milk usually comes three or four days postpartum. The color is bluish white. The milk causes a fullness and tenderness to the breasts which is known as engorgement. This congestion usually subsides in one to two days. Ejection reflex can be adversely affected by extreme factors such as anxiety, tension, or severe cold or pain. The infant should be breast-fed in a comfortable, relaxed setting. Some medications may be excreted through the breast milk.

(2) Suppression of breast milk by non-nursing mothers is simple and most natural. The mother should:

(a) Not allow the infant to suck.

(b) Not stimulate the breast or nipples.

(c) Wear a tight bra.

(d) Avoid hot showers.

(e) Apply ice packs to the breast if engorgement occurs.

NOTE: Hormonal methods to suppress breast milk are administered during the postpartum period. This method suppresses the production of prolaction.

(3) The dietary requirements of the lactating mother should include increase amounts of protein, calcium, iron, and vitamins. An increase in fluid intake is also necessary. The amount of breast milk production is directly proportional to fluid intake. Additional fluids are required in hot, humid climates.

Section II. PSYCHOLOGICAL NEEDS OF THE POSTPARTAL PATIENT

6-7. GENERAL

A major psychological task for the parents is the process of bonding and attachment with their newborn. This takes place the first three to four days of postpartum. The practical nurse is in a unique position to observe and offer psychological support and reassurance to the postpartal patient. This supportiveness can help in correcting negative bonding and reinforce the positive maternal infant adaptations that are the basis for a strong and healthy family relationship. This lesson will focus on the processes by which the psychological needs of the postpartal patient are actually filled.

6-8. PHASES OF THE RESTORATIVE PERIOD OF MATERNAL BEHAVIOR FOLLOWING DELIVERY

The restorative period is the postpartal period/time of delivery to the four to six week stabilization point. The phases are referred to as the taking-in phase, taking-hold phase, and letting-go phase.

a. **Taking-In Phase**. During this phase the mother is oriented primarily to her own needs. She primary focuses on sleeping and eating. She may be quite passive and dependent. The mother is reacting to the intense, physical effort expended during delivery and the intense, emotional effort required of her during labor. The mother does not usually initiate contact with the infant. This is not out of disinterest. It may result from her own immediate dependency. Nevertheless, she is taking-in information that helps her to identify the infant. She may use her finger-tip to touch her infant. This serves as one of the first steps in the identification process. She holds the baby facing her so they can explore each other's face (in the face position). The mother relives the delivery experience which allows her to integrate it fully with reality, fully realized her baby is born, and to identify her infant as being outside and separate from her. This phase, taking-in phase, may last for a day or two. The nurse should plan activities so that the patient can rest as much as possible because failure to allow the patient to receive the necessary and earned rest may yield a "sleep hunger" which may be manifested by irritability, fatigue, and general interference with the normal restorative process. The father's role is primarily being supportive of his wife and his family.

b. **Taking-Hold Phase**. During this phase the mother strives for independence and autonomy, she becomes the "initiator." She is concerned about her ability to control her bodily functions (that is, bowels, bladder, and if breast-feeding, concerned about adequate amount and quality of milk). She takes an active part in trying to control these functions. She is concerned about her ability to take care of her newborn. This phase is associated with a great deal of anxiety (especially by a new mother). She may have several mood swings. The mother might be involved in a lot of activity trying to accomplish tasks. Fatigue and exhaustion may occur if the mother is not helped to set realist expectations and limits for herself. The nurse is responsible to allow the mother

to actually perform infant care tasks, reinforce all positive actions (do not impose yourself), and provide guidance, instruction, and demonstration, as necessary. Reassurance and explanation about infant care are especially needed in this phase. This phase lasts for about ten days (most of this phase is accomplished at home).

c. **Letting-Go Phase**. Generally, this phase occurs when the mother returns home. The mother must accomplish two separations during this phase. The separations are to realize and accept the physical separation from the baby and to relinquish her former role of a childless person. The mother must adjust her life to the relative dependency and helplessness of her child. If she quits work, she must adapt (even if only temporarily) to less freedom, less autonomy, and less social stimulation. If she continues to work, she must handle the additional strain of finding sitters and meeting additional workload. The mother may experience a let-down feeling, which is called postpartal, or baby, "blues." This is a form of depression that is usually temporary and may occur in the hospital.

6-9. POSTPARTUM "BLUES"

a. Possible causes of postpartum "blues" are: hormonal changes that occur during the postpartal period; the emotional stresses associated with increased responsibilities of an infant and restrictions imposed by caring for an infant; ego adjustment that accompanies role transition from wife and childless person to mother; and the discomfort, fatigue, and exhaustion that may contribute or cause the condition.

b. Common manifestations experienced by the mother are let-down feeling (for no apparent reason, so the mother thinks), irritability, tears, loss of appetite, and difficulty sleeping.

c. Associated feelings experienced by the mother, secondary to her depression are:

(1) Guilt about her unaccustomed emotional displays (does not know why she is crying and identifies, "the tears just come").

(2) Loss of control over herself and over lack of the ability to care for herself.

(3) Feelings of failure as a mother, wife, or any other role of her involvement.

d. Nursing care responsibilities for postpartal "blues" patients.

(1) <u>Recognize and interpret the mother's behavior on an individual basis</u>. Not all women act the same way during childbirth and not all women will react to childbirth in the same way. There may be underlying things influencing the mother's behavior that may not be apparent.

(2) Allow the mother to cry as she wishes. Provide privacy for her. Let her know there is nothing wrong with her behavior. Crying may even be therapeutic.

(3) Convey to the mother that change takes time. This is the single most important concept to convey to the mother. She may not be able to do everything she wants as soon as she and her baby go home. It may take weeks or even months before she is able to make the transition to caring for her baby, her family, her home, and herself. It is okay not to accomplish everything immediately.

(4) Be understanding. Understanding and anticipatory guidance help the parents realize these feelings are a normal accompaniment to this role transition.

6-10. MATERNAL ADAPTATION FOLLOWING DELIVERY

a. **Positive (Successful) Bonding and Taking-Hold**. This reveals a warm mother-infant relationship beginning. It is identified by maternal-infant behavior to include mother fondling and caressing the infant, establishing eye contact with her infant, talking and cooing to her baby, and attempting to evoke a smile or vocal response from her baby.

b. **Negative Bonding**. Occasionally, a mother may have difficulty adapting to her maternal role and bonding with her infant. This may be caused by immaturity, lack of knowledge about infant care and behavior, and/or deep-rooted psychological problems. The mother may express inappropriate responses. These responses may include reluctance to hold, fondle, or interact with her infant, may find the infant unattractive or ugly, may find her infant has a serious hidden disease or defect, and/or may appear disgusted by the infant's drooling, sucking sounds, urine, or feces.

c. **Evaluation of Maternal Adaptation**. The nursing staff will make frequent observation of maternal-infant behavior during the hospital stay. All maternal-infant behavior (positive and negative) should be documented in the mother's chart as well as the infant's chart. Maternal-infant behavior that appears maladaptive should be viewed on an individual basis and reported to the professional nursing staff for evaluation by the health care team.

6-11. SPECIAL NURSING CARE NEEDS OF THE SINGLE MOTHER

a. Pregnancy is usually not planned by the single mother. Many times, the nursing staff does not know the true cause of the pregnancy. Pregnancy may result from teenage pregnancy, incest, rape, failure of a birth control method, or pregnancy conceived prior to a divorce. Lack of planning may impact on the mother's ability to care for the infant and the other's readiness to want to care for an infant.

b. Considerable time should be spent with the patient. Do not be judgmental. Offer kindness and understanding, attend to her postpartum needs, and evaluate maternal-infant adaptation responses.

(1) If the single mother is keeping the infant, the nurse should teach basic infant care skills, encourage positive maternal-infant adaptation responses, and provide resources for assistance in the community.

(2) If placing the infant for adoption, the nurse should provide emotional support, use individual assessment of each mother in determining if mother and infant should be separated, and allow the mother and family to do caretaking activities. An emotionally healthy mother with the support of family and staff may work through this crisis better if allowed to do caretaking activities for her baby.

c. The social worker or community health nurse can help solve problems with income, employment, childcare, transportation, emotional support, and assistance in the home.

d. Considerations for discharge planning. Make discharge plans based on the patient's age, maturity level, knowledge level, and maternal-infant adaptation process during hospital stay. A significant concern should be availability and support of family, relatives, friends, knowledge level, and maternal-infant adaptations process during the hospital stay.

Section III. COMPLICATIONS OF POSTPARTUM

6-12. POSTPARTAL HEMORRHAGE

Postpartal hemorrhage is the postpartum loss of blood totaling 500 ml or more within a twenty-four hour period. After bladder distention is ruled out, the three main causes of postpartal hemorrhage are uterine atony, lacerations, and retained placental fragments in the uterus.

a. **Uterine Atony**. This is the inability of the myometrium to contract and constrict the blood vessels within the muscle fibers, resulting in open sinuses at the site of placental separation. Decreased muscle tone causes slow, insidious loss of blood.

(1) Factors usually leading to uterine atony.

(a) Conditions which result on overextension of uterine musculature (multiple pregnancy - two or more fetuses and hydramnios - excessive amniotic fluid).

(b) Conditions resulting in exhaustion of the uterine musculature are large fetuses, prolonged or difficult labor, Pitocin® induced or augmented labor (this may result in decreased response to postpartal administration of pitocin) and precipitous or forceful delivery.

(2) Situations resulting in drug related relaxation of uterine musculature are the use of $MgSO_4$ for preeclampsia and the use of general anesthesia for cesarean delivery. Conditions resulting in abnormal bleeding or uterine tissue damage are cesarean section, placenta previa, abruptio placenta, uterine rupture, and retained placental fragments.

(3) Signs and symptoms of uterine atony.

(a) Signs of shock--decreased blood pressure, increased pulse, and increased and anxiety and irritability.

(b) Bleeding-usually dark with clots present.

(c) Noncontracted, boggy uterine fundus.

(4) Medical treatment.

(a) Intervenously fluids administered to increase fluid and blood volume.

(b) Oxytocin administration.

(c) Methergine/prostin may be administered to stimulate uterine contractions when oxytocin is ineffective.

(d) Blood transfusion if the patient's hematocrit drops too low and/or if she is symptomatic.

(5) Nursing interventions.

(a) Palpate the fundus frequently to determine continued muscle tone.

(b) Massage the fundus, if boggy, until firm (do not over massage, this fatigues the muscle).

(c) Monitor patient's vital signs every 15 minutes until stable.

(d) Prevent bladder distention. Bladder distention displaces the uterus and prevents effective uterine contractions.

b. **Lacerations**.

(1) Common sites. Sites of lacerations are the vaginal side wall, the cervix, the lower uterine segment, and the perineum.

(2) Degrees of perineal lacerations.

(a) First degree-tear of the vaginal and perineal mucous membranes.

(b) Second degree-tear of the vaginal and perineal mucous membrane and the perineal muscles.

(c) Third degree-tear of the vaginal and perineal mucous membrane, the perineal muscles, and the capsule of the rectal sphincter.

(d) Fourth degree-tear of the vaginal and perineal mucous membrane, the perineal muscles, and through the rectal sphincter and anterior wall of the rectum.

(3) Possible causes.

(a) Rapid descent of the fetus.

(b) Pushing prior to complete cervical effacement and dilatation.

(c) Large fetus.

(d) Forceps application.

(e) Uncontrolled, forceful extension of the fetal head.

(4) Signs and symptoms.

(a) Obvious body injury after delivery of the infant--if perineal laceration.

(b) Bright red bleeding despite a well toned fundus-if vaginal or cervical laceration and not detected at time of delivery.

(c) Signs of shock-rapid, thready pulse, falling blood pressure, increasing anxiety of the patient.

(5) Medical treatment.

(a) Suturing of the laceration.

(b) Vaginal packing.

(c) Blood transfusions if the patient's hematocrit is low and the patient is symptomatic.

(6) Nursing interventions.

(a) Observe closely for continued vaginal bleeding.

(b) Monitor the patient's vital signs.

(c) Flag the patient's chart for vaginal packing in place. This is helpful to the nurse who is checking for vaginal bleeding doesn't mistake a lack of obvious signs of blood for no bleeding. The vaginal packing could "hide" a hemorrhagic episode of bleeding.

c. **Retained Placental Fragments in the Uterus**. These fragments are the major cause of late postpartum hemorrhage.

(1) Signs and symptoms.

(a) Large amount of bright red bleeding or persistent trickle type bleeding.

(b) Uterus may be boggy due to its inability to contract properly.

(c) Signs of shock.

(d) Sudden rise in uterine fundal height indicating the formation of clots inside the uterine cavity.

(2) Medical treatment.

(a) Manual removal of the remaining placenta is done by the physician, if it is a result of incomplete separations of the placenta with increased vaginal bleeding.

(b) A D&C is performed, if it is retained fragments.

(c) Intravenous fluids are administered.

(d) Oxytocic drugs are given immediately after either procedure.

(3) Nursing interventions.

(a) Check the uterine fundus tone frequently (every 15 minutes the first hour, then every 30 minutes for 2 hours, and every hour until stable).

(b) Check the nature and amount of lochia flow (every 15 minutes the first hour, then every 30 minutes for 2 hours, and every hour until stable).

(c) Keep accurate count of perineal pads used.

(d) Monitor the patient's vital signs and blood pressure every 15 minutes or more frequently as necessary.

(e) Observe for signs of shock.

(f) Turn the patient on her side to prevent pooling of blood under her.

(g) Provide emotional support to the patient and family.

6-13. HEMATOMAS

Vulvar hematoma is a localized collection of blood in the connective tissue beneath the skin covering the external genitalia or vaginal mucosa. It generally forms as a result of injury to the perineal blood vessels during the delivery process.

a. **Causes of Hematomas**.

(1) Rapid, spontaneous delivery.

(2) Perineal varicosities.

(3) Episiotomy repairs.

(4) Laceration of perineal tissues.

b. **Signs and Symptoms**.

(1) Severe, sharp perineal pain.

(2) Appearance of a tense, sensitive mass of varying size covered by discolored skin.

(3) Swelling in the perineal wall.

(4) Often seen on the opposite side of the episiotomy.

(5) Inability to void due to pressure/edema on or around the urethra.

(6) Complaint of fullness or pressure in the vagina.

c. **Medical Treatment**. This is consists of analgesics given for discomfort, opening the hematoma so blood clots can be evacuated and the bleeders can be ligated, and packing for pressure.

d. **Nursing Interventions**.

(1) Apply ice to area of hematoma.

(2) Observe for evidence of enlarged hematoma.

(3) Flag the patient's chart if packing was inserted.

6-14. UTERINE SUBINVOLUTION

Uterine subinvolution is a slowing of the process of involution or shrinking of the uterus.

a. **Causes**. Endometritis, retained placental fragments, pelvic infection, and uterine fibroids may cause uterine subinvolution.

b. **Signs and Symptoms**.

(1) Prolonged lochial flow.

(2) Profuse vaginal bleeding.

(3) Large, flabby uterus.

c. **Medical Treatment**.

(1) Administration of oxytocic medication to improve uterine muscle tone. Oxytocic medication includes

(a) Methergine®-a drug of choice since it can be given by mouth.

(b) Pitocin®.

(c) Ergotrate®.

(2) Dilation and curettage (D&C) to remove any placental fragments.

(3) Antimicrobial therapy for endometritis.

d. **Nursing Interventions**.

(1) Early ambulation postpartum.

(2) Daily evaluation of fundal height to document involution.

6-15. PUERPERAL INFECTION

Puerperal infection is a term used to describe any infection of the reproductive tract during the first six weeks of postpartum.

a. **Pathology**. When the third stage of labor is completed, the placental attachment site is raw, elevated, and dark red. The surface is nodular, owing to the numerous veins, and offers an excellent portal of entry for microorganisms. The uterine decidua is very thin and has many small openings that offer a portal for pathogens. In addition, small cervical, vaginal and perineal lacerations, as well as the episiotomy site, provide entry ports for pathogens. The resultant inflammation and infection can remain localized or can extend via blood or lymph vessels to other tissues.

b. **Organisms**. Those organisms recognized as the common causative agents are normally seen in the lower bowel and lower genital tract.

(1) Anaerobic staphylococci.

(2) Anaerobic streptococci.

(3) Clostridium perfringens.

(4) Neisseria gonorrhea.

c. **Predisposing Factors**.

(1) Prolonged rupture of uterine membranes provides increased opportunity for infection to develop prior to delivery.

(2) Retained placental fragments-provides additional medium for infectious growth.

(3) Postpartal hemorrhage-causes decreased resistance to pathogens.

(4) Preexisting anemia-low resistance to infection.

(5) A prolonged and difficult labor, especially with the involvement of instruments (forceps).

(6) Intrauterine manipulations for fetal delivery or manual expulsion of placenta.

d. **Spread of Infectious Microorganisms**. This may be the result of the spread of infectious microorganisms in the hospital setting.

e. **Means to Prevent the Spread of Puerperal Infection in Hospitals**.

(1) Restrict personnel with respiratory infections from working with patients.

(2) Use caps, mask, gowns, and gloves when working in delivery rooms.

(3) Use sterilized equipment within control dates.

(4) Wash hands meticulously (staff).

(5) Correct breaks in sterile techniques immediately.

(6) Instruct the patient on hand washing and cleansing her perineum from front to back.

(7) Limit unnecessary vaginal exams during labor which increases the chances of introducing organisms from the rectum and vagina into the uterus.

f. **Kinds of Postpartal Infections**.

(1) Endometritis-invasion of microorganisms into the placental site of the uterine wall.

(2) Pelvic cellulitis (parametritis)-infection that has spread beyond the endometrium into the surrounding pelvic structures including the broad ligament.

(3) Peritonitis-an infection of the peritoneum, either generalized or localized.

(4) Salpingitis-an infection of the fallopian tubes following childbirth.

g. **Medical Treatment of Puerperal Infection**.

(1) Antibiotics to which the causative organisms are sensitive, analgesics, and sedatives.

(a) Initial antibiotics are given by IV until the fever resolves.

(b) May possibly switch from IV and give oral medication if fever remains normal for 48 to 72 hours.

(c) May use a course of triple antibiotics until all cultures are obtained.

(2) Incision and drainage (I&D) of any abscesses formed.

h. **Nursing Care of Puerperal Infection**.

(1) Isolation, if possible, the removal of the patient from the maternity ward.

(2) Meticulous hand washing.

(3) Patient placed in Fowler's position to facilitate drainage.

(4) Reeducation of the patient on handwashing and peri-care.

(5) Emotional support since the patient may be prevented from rooming in with her infant while her temperature is elevated.

6-16. THROMBOPHLEBITIS

a. **General**. Thrombophlebitis is an inflammation/infection of pooled and clotted blood in a vein.

(1) Types of Thrombophlebitis.

(a) Femoral- nflammation along the femoral, popliteal, or sephenous veins.

(b) Pelvic-inflammation/infection of the pelvic veins.

(c) Superficial- nflammation/infection of the superficial saphenous veins.

(2) Signs and Symptoms.

(a) Pain.

(b) Fever.

(c) Localized tenderness and/or swelling and redness.

(d) Chills.

(3) Medical Treatment.

(a) Antibiotic therapy.

(b) Anticoagulant therapy-heparin.

(c) Blood transfusions as needed.

(4) Nursing Management.

(a) Bed rest.

(b) Analgesics as needed.

(c) Elastic leg supports where indicated.

(d) For leg involvement, apply warm moist soaks to affected area(s).

b. **Pulmonary Embolus**. This is a major complication of thrombophlebitis. It results when a clot breaks loose, travels through the circulatory system, and obstructs the pulmonary arterial bed. It is a serious, life-threatening situation.

(1) Signs and symptoms.

(a) Chest pain.

(b) Sudden shortness of breath.

(c) Rapid respirations.

(d) Air hunger/anxiety.

(e) Circulatory collapse--weak, rapid pulse and hypotension.

(f) Cyanosis.

(2) Treatment and nursing care.

(a) Administer oxygen as ordered.

(b) Give sedatives to relax the patient as ordered.

(c) Perform surgery to remove the embolus.

(d) Monitor vital signs very closely (at least every hour).

(e) Transfer to intensive care unit (ICU) if necessary.

(f) Provide emotional support since the patient may be restricted from seeing her baby due to visitation policies.

6-17. MASTITIS

Mastitis is inflammation of the breast tissue, usually unilateral after the milk flow is established. It is caused by streptococcal or staphylococcal invasion of the breast tissue through cracks or fissures around the nipple. It may be obtained from the infant's nose or throat. The infant probably acquired it while in the nursery.

a. **Signs and Symptoms.**

(1) Erythema over the infected breast.

(2) Marked breast engorgement.

(3) Acute breast pain, tenderness.

(4) Fever and chills.

(5) Acillary lymph gland enlargement.

b. **Medical Treatment.**

(1) Antibiotic therapy and analgesic therapy.

(2) Periodic cultures of breast milk.

(3) Intervenously fluids.

(4) Possible I&D, if abscesses.

(5) Discontinued breast-feeding for a short time depending on antibiotic used and closeness of abscess site to nipple.

c. **Nursing Care.**

(1) Apply ice or heat to painful, swollen breast depending on the stage of infection. Ice should be avoided if the mother plans to resume or continue breast-feeding.

(2) Encourage increased fluids.

(3) Inform mother to wear a support bra.

(4) Have the mother pump her breast until nursing resumes. Pumping the breast should be avoided if the mother plans to bottle-feed.

(5) Retrain mother in breast care techniques and feeding techniques.

(6) Instruct mother on the importance of handwashing.

6-18. THE CESAREAN SECTION DELIVERY

a. Cesarean section delivery refers to a surgical incision made into the abdomen and uterus to deliver the fetus. It requires the same postsurgical care as any other abdominal surgical patient.

b. Postpartal care.

(1) Observe incision site for bleeding or infection.

(2) Ambulate early.

(3) Have patient turn, cough, and deep breathe especially if general anesthesia was used.

(4) Monitor intake and output, especially voiding the first 24 hours after a foley catheral is removed.

(5) Observe lochia flow as ordered.

(6) Monitor fundal muscle tone-gently, according to the same frequency as checking for lochia.

(7) Assist with breast-feeding as soon as possible (immediately if desired--there is no reason to refrain).

(8) Encourage maternal-infant bonding as soon as possible.

6-19. POSTPARTAL PSYCHOSIS

Postpartal psychosis is a major psychiatric complication in three of a thousand pregnant women. Fifteen percent occurs during the prenatal period. Eighty five percent occurs during postpartal. The causes are unknown but possible precipitating factors include the birth experience itself, personality traits, hormone withdrawal following delivery, and fear of the maternal role. Postpartal psychosis usually appears the third day after delivery.

a. **Signs and Symptoms**.

(1) Withdrawal.

(2) Depression.

(3) Hostility.

(4) Suspicion.

(5) Denial of existence of infant.

(6) Delusions regarding the infant.

(7) Mood swings.

b. **Treatment and Nursing Care**.

(1) Close observation and documentation of symptoms.

(2) Protection of the patient and infant.

(3) Counseling - prognosis depends for the most part on the nature of the underlying psychiatric disorder that is almost always present.

(4) Assistance in developing coping mechanisms.

6-20. GRIEF-STRICKEN MOTHER

a. A dead, dying, or severely handicapped infant leads to the problems of grief and grief resolution for the postpartum mother. The initial task faced by the mother is the realization that her child is dead, dying, or severely handicapped. Parents feel devastated and inadequate and are mourning the loss of the fantasized perfect baby.

b. Nursing care needs.

(1) Be able to cope constructively with her own response to loss and grief to meet the woman's needs.

(2) Provide emotional support for the mother and her family. Encourage them to talk about their feelings. Do not avoid talking about the baby.

(3) Place the parents and the baby in a private room.

(4) Encourage infant bonding.

(5) Acknowledge the father as an equal, grieving parent.

(6) Encourage and provide an opportunity for the parents to hold the infant.

(a) Prepare the parents for initial meeting of the infant by explaining the cause of discoloration and/or blistering/peeling of the infant's skin and softness of skull.

(b) Present infant in newborn clothes, if possible, and wrap in a blanket.

(c) Hold and handle the infant as you would a live child.

(d) Encourage and assist the parents in unwrapping the infant and foster bonding by calling attention to things such as features that resemble parents or normal features such as presence of hair, fingernails, eyelashes, etc.

(e) Allow the parents unlimited time alone with the infant.

(7) Provide the parents with a collection of concrete memories. Make out delivery bracelets with the infant's sex, delivery date, and time. Obtain the infant's footprints, weight, length on "newborn card," and a lock of the infant's hair if possible.

(8) Make sure the mother is allowed to attend the funeral and to help with the arrangements.

(9) Educate the mother and father on the grieving process and what to expect.

(10) Refer/consult with the appropriate health care team members (clergy, social work) to initiate follow-up support.

Continue with Exercises

EXERCISES, LESSON 6

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. The _____ is known as the first six weeks after delivery of a baby.

2. Afterpains are intensified by _____ ..

3. List the three types of lochia flow in order of occurrence.

   _____

   _____

   _____

4. _____ helps to conserve body fluids.

5. The hormones that stimulated breast development during pregnancy decreases promptly after delivery. What determines, in part, the time it takes for these hormones to return to the prepregnancy levels?

   _____

6. What is so unique about lochia flow as compared to normal menstrual flow?

   _____

7. Why does a mother's hemocrit drop after delivery of a baby?

   _____

8. When milk causes a fullness and tenderness to the breasts it is known as:

_____

9. What measures should the mother take to suppress her breast milk?

_____

_____

_____

_____

_____

10. When does bonding and attachment of a newborn take place for the parents?

_____

11. What are the nursing care responsibilities for postpartal blues patients?

_____

_____

_____

_____

12. Following delivery of a newborn, several maternal adaptations take place. Write the adaption described in each of the followng.

_____ - a warm mother-infant relationship beginning.

_____ - a mother having difficulty adapting to her maternal role and bonding with her infant.

13. Considerable time should be spent with single mothers.

    a. True.

    b. False.

14. The _____ is the postpartal period/time of delivery to the four to six week stabilization point.

15. What are the three main causes of postpartal hemorrhage after bladder distention is ruled out?

    _____

    _____

    _____

16. List the possible causes of perineal lacerations.

    _____

    _____

    _____

    _____

    _____

17. Severe, sharp perineal pain, swelling in the perineal wall, and complaint of fullness or pressure in the vagina are signs and symptoms of:

    _____

18. What are the medical treatments for hematomas?

_____

_____

_____

19. When the nurse provides grieving parents with a lock of the infant's hair, she is providing the parents with a collection of:

_____

20. List the possible factors that may lead to postpartal psychosis.

_____

_____

_____

_____

21. _____ delivery requires the same postsurgical care as any other abdominal surgical patient?

22. Organisms recognized as common causative agents for puerperal infections and normally seen in the lower bowel and lower genital tract are:

_____

_____

_____

For exercises 23 through 32. Match the phrases in Column A with the correct term or statement as listed in Column B. Place the letter of the correct answer in the space provided to the left of Column A.

COLUMN A	COLUMN B
____ 23. Loss of blood totaling 500 ml or more within a 24-hour period after delivery.	a. Mastitis.
____ 24. A localized collection of blood in the connective tissue beneath the skin covering the external genitalia or vaginal mucosa.	b. Thrombophlebitis.
____ 25. Vaginal side wall, the cervix, the lower uterine segment, the perineum.	c. Signs/symptoms of uterine subinvolution.
____ 26. Denial of infant's existence.	d. A sign/symptom of postpartal psychosis.
____ 27. A major complication of thrombophlebitis.	e. Retained placental and fragments in the uterus.
____ 28. Endometritis, pelvic cellulitis, peritonitis, salpingitis.	f. Pulmonary embolus.
____ 29. Prolonged lochial flow, profused vaginal bleeding, large flabby uterus.	g. Kinds of postpartal infections.
____ 30. Inflammation of breast tissue.	h. Common sites for lacerations.
____ 31. Inflammation / infection of pooled and clotted blood in a vein.	i. Postpartal hemorrhage.
____ 32. Major cause of late postpartum hemorrhage.	j. Vulvar hematoma.

Check Your Answers on Next Page

SOLUTIONS, LESSON 6

1. Postpartum period. (para 6-1)

2. Breast-feeding. (para 6-2a(2))

3. Lochia rubra.
   Lochia serosa.
   Lochia alba. (para 6-2b(1))

4. Amenorrhea. (para 6-5)

5. Whether the mother breast-feds her baby. (para 6-6)

6. Lochia clots whereas normal menstruation flow does not. (para 6-2b(3))

7. Due to blood loss during actual delivery. (para 6-3b)

8. Engorgement. (para 6-6c(1))

9. Not allow the infant to suck.
   Not stimulated the breast or nipples.
   Wear a tight bra.
   Avoid hot showers.
   Apply ice packs to the breast if engorgement occurs. (para 6-6c(2))

10. First three to four days of postpartum. (para 6-7)

11. Recognize and interpret mother's behavior as an individual.
    Allow mother to cry as she wishes.
    Convey to the mother that change takes time.
    Be understanding. (para 6-9d)

12. Positive bonding and taking hold.
    Negative bonding. (paras 6-10a, b)

13. a (para 6-11b)

14. Restorative period of maternal behavior. (para 6-8)

15. Uterine atony.
    Lacerations.
    Retained placental fragments in the uterus. (para 6-12)

16. Rapid decent of the fetus.
Pushing prior to complete cervical effacement and dilatation.
Large fetus.
Forceps application.
Uncontrolled, forceful extension of the fetal head. (para 6-12b(3))

17. Vulvar hematoma. (paras 6-13b(1), (3), (6))

18. Analgesics for discomfort.
Packing for pressure.
Opening the hematoma so blood clots can be evacuated and the bleeders can be ligated. (para 6-13c)

19. Concrete memories. (para 6-20b(7))

20. Birth experience itself.
Personality traits.
Hormone withdrawal following delivery.
Fear of the maternal role. (para 6-19)

21. Cesarean section. (para 6-18a)

22. Anaerobic staphylococci.
Anaerobic streptococci.
Clostridium perfringens.
Neisseria gonorrhea. (para 6-15b)

23. i (para 6-12)

24. j (para 6-13)

25. h (para 6-12b(1))

26. d (para 6-19a(5))

27. f (para 6-16b)

28. g (para 6-15f)

29. c (para 6-14b)

30. a (para 6-17)

31. b (para 6-16a)

32. e (para 6-12c)

End of Lesson 6

LESSON ASSIGNMENT

LESSON 7 Characteristics of the Typical Newborn Infant.

TEXT ASSIGNMENT Paragraphs 7-1 through 7-10.

LESSON OBJECTIVES After completing this lesson, you should be able to:

7-1. Identify terms and definitions that refer to the typical newborn infant.

7-2. Identify the temperature regulation procedures for a newborn.

7-3. Identify the normal pulse range of a newborn.

7-4. Identify the blood pressure normals for a newborn.

7-5. Identify specific characteristics of a newborn's head.

7-6. Identify the characteristics of cephalhematoma and caput succedaneum.

7-7. Identify the characteristics of a newborn's eyes and ears.

7-8. Identify the characteristics of a newborn's skin to include vernix caseosa, Lanugo, Mongolian spots, petechiae, milia, and birthmarks.

7-9. Identify the characteristics of a newborn's stools.

7-10. Identify the characteristics of residual cyanosis.

7-11. Identify the characteristics of blood coagulation.

7-12. Identify the purpose for giving vitamin K.

7-13. Identify the causes frequently resulting in respiratory difficulty in the newborn.

7-14. Select the maternal hormones that cause endocrine disturbances in the newborn.

7-15. Identify the common infant reflexes.

SUGGESTION

After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 7

CHARACTERISTICS OF THE TYPICAL NEWBORN INFANT

7-1. GENERAL

The nurse is in a unique position to aid the newborn infant in the stressful transition from a warm, dark, fluid-filled environment to an outside world filled with light, sound, and novel tactile stimuli. During this period of the newborn adjusting from intrauterine to extrauterine life, the nurse must be knowledgeable about a newborn's normal biopsychosocial adaptations to recognize any deviations. To begin life as an independent being, the baby must immediately establish pulmonary ventilation in conjunction with marked circulatory changes. These radical and rapid changes are crucial to the maintenance of life. All other neonatal body systems change their functions or establish themselves over a longer period of time. The nurse performs an initial assessment to evaluate the neonate, its immediate postbirth adaptations, and the need for further support.

7-2. VITAL SIGNS OF THE NEWBORN INFANT

a. **Temperature Regulation**.

(1) The infant's body temperature drops immediately after birth in response to the extrauterine environment. His internal organs are poorly insulated and his skin is very thin and does not contain much subcutaneous fat. The infant's heat regulating mechanism has not fully developed. His temperature rapidly reflects that of his environment. The flexed position that the infant assumes is a safeguard against heat loss because it substantially diminishes the amount of body surface exposed.

(2) Nursing implications are centered on regulating an environment to provide constant body temperature of a neutral thermal environment. The infant is placed in blankets, hat, and a controlled temperature environment after birth to counteract the drop in body temperature that occurs immediately after birth. After admission to the nursery, the infant is placed in isolation (isolette) and a temperature probe may be used for continuous monitoring. The infant's axillary temperature is maintained at 36.4 to 37.2^{o} C.

NOTE: An isolette is a self-contained unit that controls the temperature, humidity, and oxygen concentration for an infant.

b. **Pulse**. The normal pulse range for an infant is 120 to 140 beats per minute (bpm). The rate may rise to 160 bpm when the infant is crying or drop to 100 bpm when the infant is sleeping. The apical pulse is considered the most accurate.

c. **Blood Pressure.** The average blood pressure(BP) of an infant at birth is 72/42. A drop in systolic BP of about 15 mm Hg the first hour after birth is common. The newborn's BP may be taken with a Doppler blood pressure device. This greatly improves accuracy.

d. **Respirations**. The respirations of a newborn infant are irregular in depth, rate, and rhythm and vary from 30 to 60 beats per minute. Respirations are affected by the infant's activity (that is, crying). Normally, respirations are gentle, quiet, rapid, and shallow. They are most easily observed by watching abdominal movement because the infant's respirations are accomplished mainly by the diaphragm and abdominal muscles (see figure 7-1). No sound should be audible on inspiration or expiration.

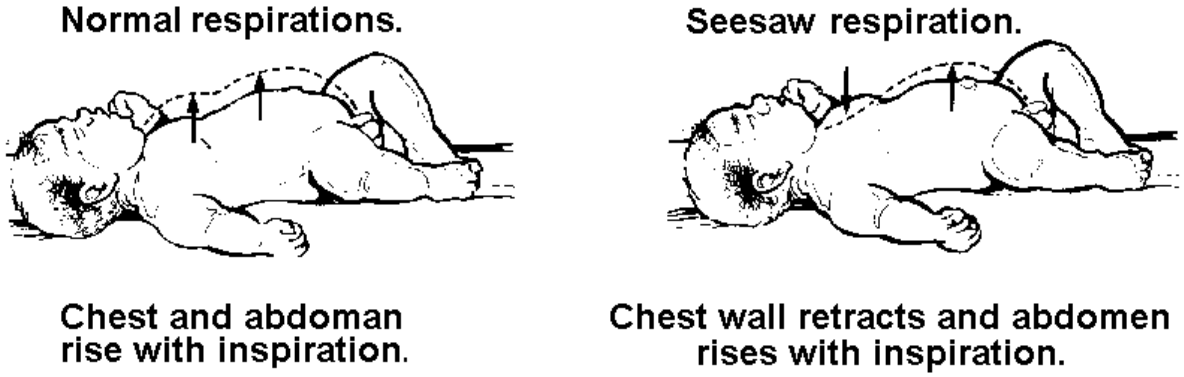

Normal respirations.
Seesaw respiration.
Chest and abdoman rise with inspiration.
Chest wall retracts and abdomen rises with inspiration.

Figure 7-1. Infant's respirations.

7-3. CHARACTERISTICS OF THE NEWBORN INFANT'S HEAD

The newborn infant's head represents one-fourth of his total body length. Its circumference is equal to that of his abdomen or chest. The average size is 13" to 14" (33-35 cm). The head is shaped or molded as it is forced through the birth canal in vertex presentations.

a. **Molding**. During delivery, for the large head to pass through the small birth canal, the skull bones may actually overlap in a process referred to as molding. Such molding reduces the diameter of the skull temporarily. This elongated look usually disappears a few hours after birth as the bones assume their normal relationships (see figure 7-2).

b. **Fontanels**. The infant's skull is separated into six bones one from another along the suture lines (see figure 7-3). Where more than two bones come together, the space is called a fontanel. This is the unossified space or soft spot between the cranial bones of the skull in an infant. The infant's pulse is sometimes visible there. The anterior fontanel is located at the intersection of the sutures of the two parietal bones and the frontal bones. It is diamond-shaped and strongly pulsatile. It normally closes at 9 to 18 months of age. The posterior fontanel is located at the junction of the sutures of

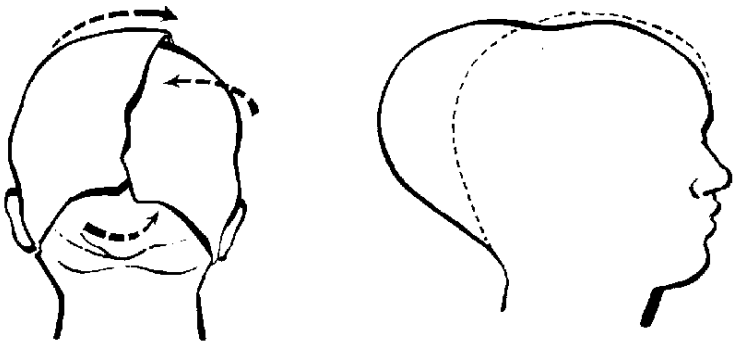


Figure 7-2. Molding of infant's head.

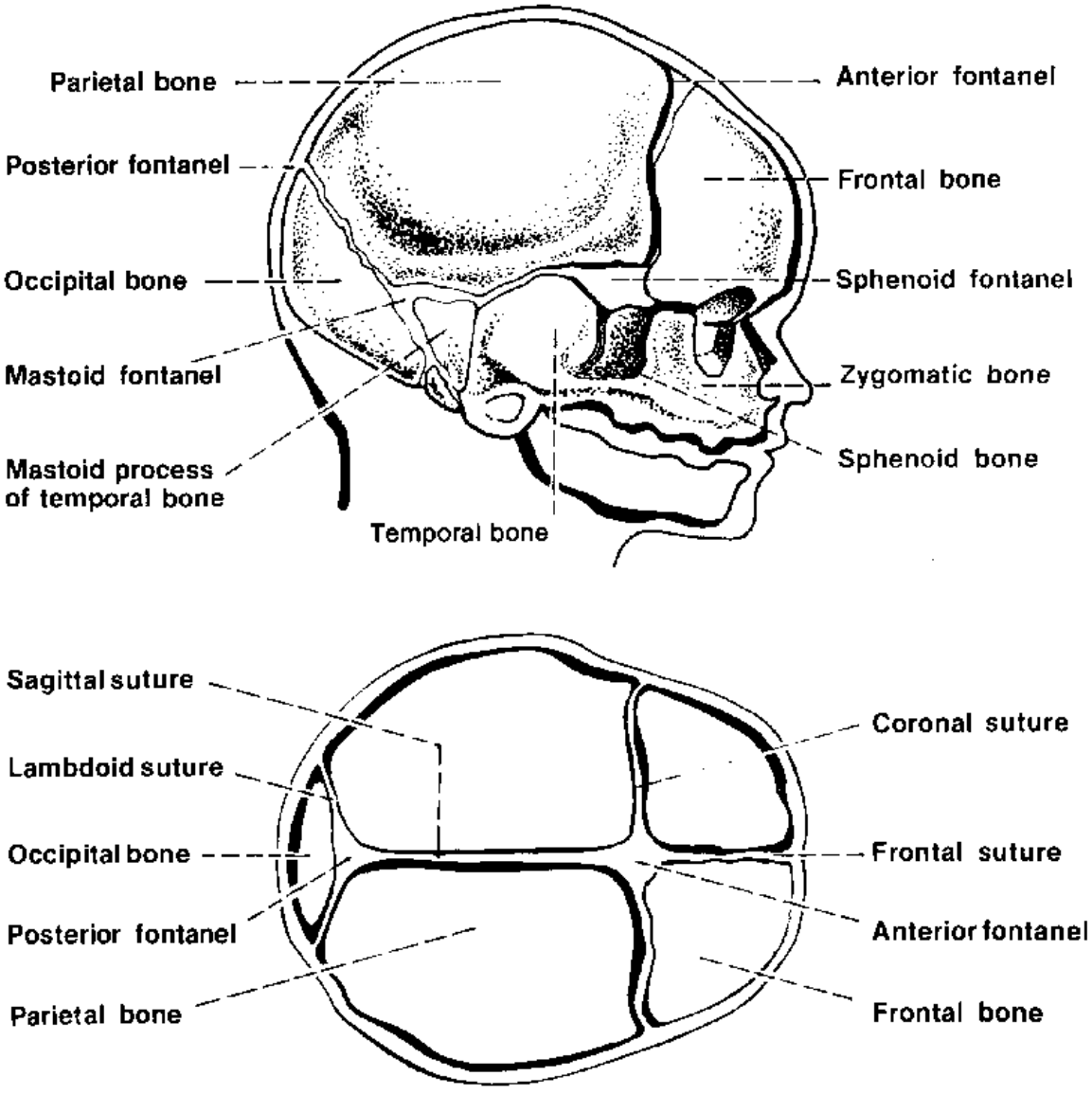


Figure 7-3. Infant's skull.

the 2 parietal bones and 1 occipital bone. It is small, triangular shaped, and less pulsatile. It normally closes at 1 1/2 to 3 months of age. The anterior fontanel is the larger of the two.

c. **Cephalhematoma**. This is a collection of blood between a cranial bone and its overlying periosteum (see figure 7-4). Bleeding is limited to the surface of the particular bone. It is caused by pressure of the fetal head against the maternal pelvis during a prolonged or difficult labor. This pressure loosens the periosteum from the underlying bone, therefore rupturing capillaries and causing bleeding. It may be apparent at birth but sometimes are not seen until 24 to 48 hours of life because subperiosteal bleeding is slow. It varies in size, rather firm to the touch and tends to increase in size from 1 to 3 days and then become softer and more fluctuant. Most cephalhematomas are absorbed within several weeks. No treatment is required in the absence of unexplained neurologic abnormalities.

d. **Caput Succedaneum**. This is an abnormal collection of fluid under the scalp on top of the skull that may or may not cross the suture lines, depending on the size. Pressure on the presenting part of the fetal head against the cervix during labor may cause edema of the scalp (see figure 7-4). This diffuse swelling is temporary and will be absorbed within 2 or 3 days.

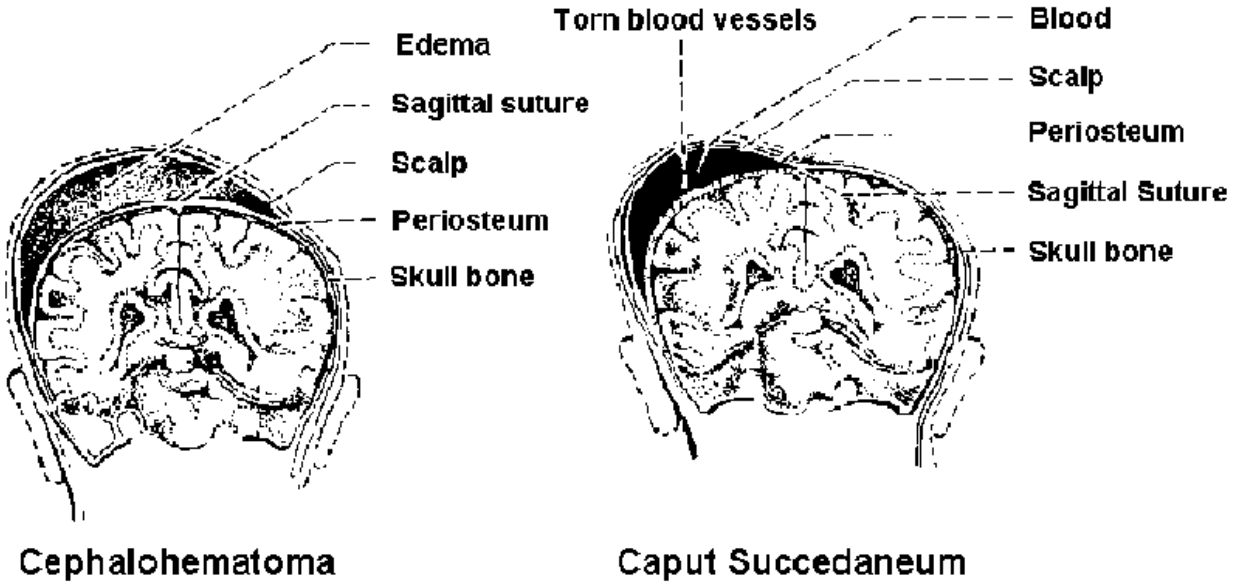


Figure 7-4. Cephalhematoma and caput succedaneum.

7-4. CHARACTERISTICS OF THE NEWBORN INFANT'S EYES AND EARS

a. **Eyes**. The infant's eyes may be folded and creased and may seem out of shape because they contain little hardened cartilage. The infant's eyes may not track properly and may cross (strabismus) or twitch (nystagmus). This will cause concern if it extends beyond six months.

(1) Color. At birth, the iris color is usually grayish-blue in Caucasians and grayish brown or brown in dark-complexioned races. A gradual deposition of pigment produces the final eye color of the baby at the age of three to six months and sometimes it may take a year.

(2) Pupils. The pupils do react to light and the infant can focus on objects about eight inches away. The infant's blinking is a natural protection reflex.

(3) Lacrimal apparatus. The lacrimal apparatus is small and nonfunctioning at birth and tears are not usually produced with crying until one to three months of age.

b. **Ears**. The infant's ears tend to be folded and creased. A line drawn through the inner and outer canthi of the eye should come to the top notch of the ear where it joins the scalp (see figure 7-5). The infant usually responds to sound at birth.

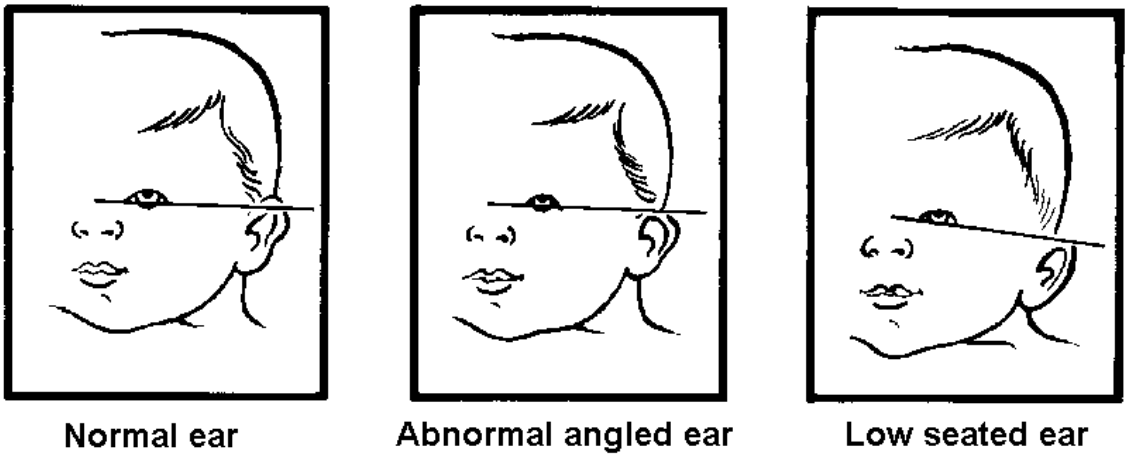


Figure 7-5. Structure of infant's ear.

7-5. CHARACTERISTICS OF THE NEWBORN INFANT'S SKIN

The infant has delicate skin at birth that appears dark red because it is thin and layers of subcutaneous fat have not yet covered the capillary beds. This redness can be seen through heavily pigmented skin and becomes even more flushed when the baby cries.

a. **Vernix Caseosa**. This is a soft, white, cheesy, yellowish cream on the infant's skin at birth (see figure 7-6). It is caused by the secretions of the sebaceous glands of the skin. It offers protection from the watery environment of the uterus, is absorbed in the skin after birth, and serves as a natural moisturizer. If there is a large amount of vernix caseosa present, it should be meticulously removed as it is thought to be a good culture medium for bacteria.

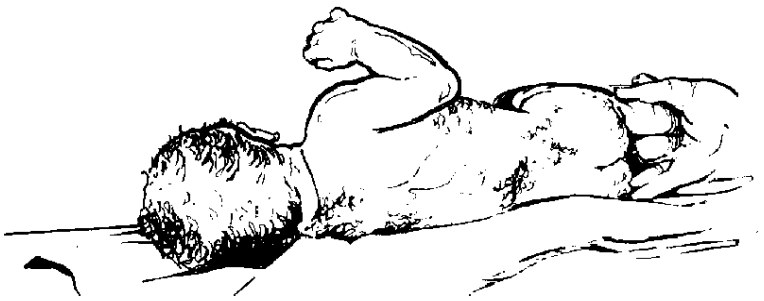


Figure 7-6. Vernix caseosa.

b. **Lanugo**. This is a long, soft growth of fine hair on the infant's shoulders, back, and forehead. It disappears early in postnatal life.

c. **Mongolian Spots**. These are blue-black colorations on the infant's lower back, buttocks, and anterior trunk. They are often seen in infants of Black, Indian, Mongolian, or Mediterranean ancestry. These spots occur less frequently in Caucasian babies. The spots are not bruises nor are they associated with mental retardation. They disappear in early childhood.

d. **Jaundice**. This is a yellow discoloration that may be seen in the infant's skin or in the scera of the eye. Jaundice is caused by excessive amounts of free bilirubin in the blood and tissue.

e. **Petechiae**. These are small, blue-red dots on the infant's body caused by breakage of tiny capillaries. They may be seen on the face as a result of pressure exerted on the head during birth. True petechiae does not blanch on pressure.

f. **Milia**. These are tiny sebaceous retention cysts. They appear as small white or yellow dots and are common on the nose, forehead, and cheeks of the infant. They are of pin head size and opalescent. Milia is due to blocked sweat and oil glands that have not begun to function properly. They disappear spontaneously within a few weeks.

g. **Birthmarks**.

(1) These are small, reddened areas sometimes present on the infant's eyelids, mid-forehead, and nape of the neck. They may be the result of local dilatation of skin capillaries and abnormal thinness of the skin. They are sometimes called stork bites or telangiectasia. These marks usually fade and disappear altogether. They may be noticeable when the infant blushes, is extremely warm, or becomes excited.

(2) A Hemangioma or strawberry mark is a type of birthmark that is characterized by a dark or bright red raised, rough surface. They do not develop for several days. They may regress spontaneously or may even increase in size. Surgical removal is not recommended. There is a "wait-and-see" attitude advocated before surgical removal.

7-6. CHARACTERISTICS OF THE NEWBORN GASTROINTESTINAL SYSTEM

a. **Mouth**. The infant's lips should be pink and the tongue smooth and symmetrical. The tongue should not extend or protrude between the lips. The connective tissue attached to the underside of the tongue should not restrict the mobility of the tip of the tongue. The gums may have tooth ridges along them, and rarely a tooth or two may have erupted before birth. The roof of the mouth should be closed, and the uvula should be present. Sometimes there are glistening spots (firm white or grayish-white nodules, usually multiple) on the palate that are referred to as Epstein's pearls. A common site for them is at the junction of the hard and soft palates.

b. **Stomach**. The capacity of the infant's stomach is about one to two ounces (30 to 60 ml) at birth, but increases rapidly. Milk passes through the infant's stomach almost immediately. The infant is capable of digesting simple carbohydrates and proteins, but has a limited ability to digests fats.

c. **Intestines**. Irregularity in peristaltic motility slows stomach emptying. Peristaltic increases in the lower ileum, which results in one to six stools a day. The first stools after birth and for three to four days afterwards are called meconium. Meconium is stringy, tenacious, and black and has a tarry texture. With the ingestion of colostrum or formula, a gradual transition occurs. There may be few greenish stools and the stools will gradually become more yellow. Formula stools are lemon yellow and curdy. Breast milk stools are yellow-orange, soft, and more frequent. See figure 7-7.

NOTE: Peristalsis is referred to as progressive wavelike movement that occurs involuntarily in hollow tubes of the body, especially the alimentary canal.

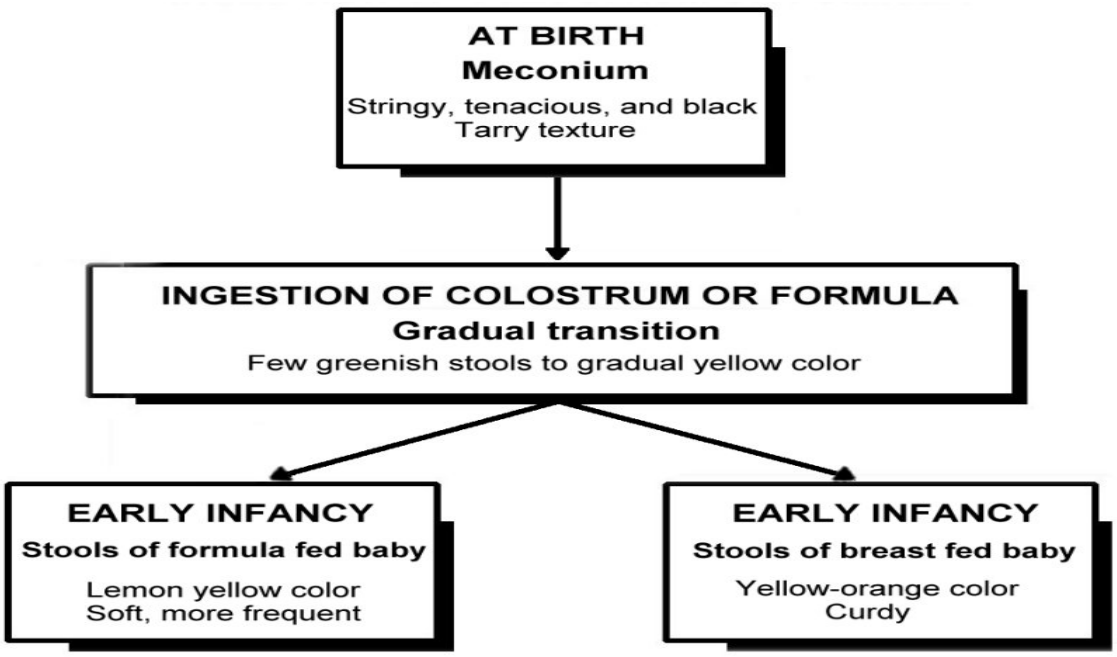


Figure 7-7. Infant's stools.

7-7. CHARACTERISTICS OF THE NEWBORN CIRCULATORY SYSTEM

a. **Blood Flow**. When the umbilical blood stops flowing at birth, sudden pressure differences occur within the circulatory system. These differences cause the blood flowing to the lungs and liver to increase and the blood flowing through the bypass channels to decrease. Peripheral circulation refers to residual cyanosis in hands and feet. This may be apparent for one to two hours after birth and is due to sluggish circulation. Blood is shunted to vital organs immediately after birth.

b. **Blood Coagulation**. During the first few days of life, the prothrombin level decreases and clotting time in all infants is prolonged. This process is most acute between the second and fifth postnatal days. It can be prevented to a large extent by giving vitamin K to the infant after birth. With the ingestion of food, establishment of digestion, and maturation of the liver, vitamin K is manufactured by the baby and clotting time stabilizes within a week to ten days.

7-8. CHARACTERISTICS OF THE NEWBORN RESPIRATORY SYSTEM

a. Until the infant's first breath of air is taken, the alveoli (air sacs) in the lungs are in an almost complete state of collapsed. The lungs should be in this state because the lung must not fill with amniotic fluid or other liquids. However, the fluid/liquid that flows in the lungs during normal delivery is squeezed or drained from the infant lungs. The major portion of the fluid is absorbed after delivery by the avcolar membranes into the blood capillaries.

b. The most frequent cause of respiratory difficulty in the first few hours of birth has been due to the too liberal use of sedatives, tranquilizers, analgesics, and anesthetics that affect not only the mother, but pass over the placenta to the infant. These drugs make the baby sleepy and disinclined to take the first breath.

7-9. CHARACTERISTICS OF THE NEWBORN ENDOCRINE SYSTEM

The endocrine glands are considered better organized than other systems. Disturbances are most often related to maternally provided hormones (estrogen, luteal, and prolactin) that may cause the following conditions:

a. Vaginal discharge and/or bleeding may occur in female infants. This discharge is white mucoid in color. Bleeding may occur as a result of withdrawal from maternal hormones at the time of birth. There are usually only a few blood spots seen on the diapers. The entire process terminates in one to two days.

b. Enlargement of the mammary glands may occur in both sexes. This is particularly noticeable about the third day of life. Breast secretion may also occur. Swelling usually subsides in two to three weeks. The breast should not be squeezed; it only increases the chances of infection and injuries to the tender tissue.

7-10. CHARACTERISTICS OF THE NEWBORN NEUROMUSCULAR SYSTEM

The newborn infant exhibits remarkable sensory development and an amazing ability for self-organization in social interactions. The infant's muscles are firm and resilient. He has the ability to contract when stimulated, but lacks the ability to control them. He wiggles and stretches, but movements are uncoordinated.

a. **Cephalo-Caudal (Head to Toe) in Development**. Gross motor development occurs first, followed by finer motor development. Reflex actions present at birth serve the infant until neuromuscular development is improved. Absence of reflex activity often indicates some form of brain damage.

b. **Common Infant Reflexes.** See figure 7-8.

(1) Rooting. The infant turns his head to the side when the side of his face is touched.

(2) Moro reflex. The infant's total body responds to a startling event. His arms extend out and up, legs flex toward abdomen. This reflex is usually lost by three months of age.

(3) Tonic neck reflex. The infant assumes a fencer's position. His arm and leg on one side is extended, the opposite side is flexed. His head is turned toward extended side. This is not evident after four months of age.

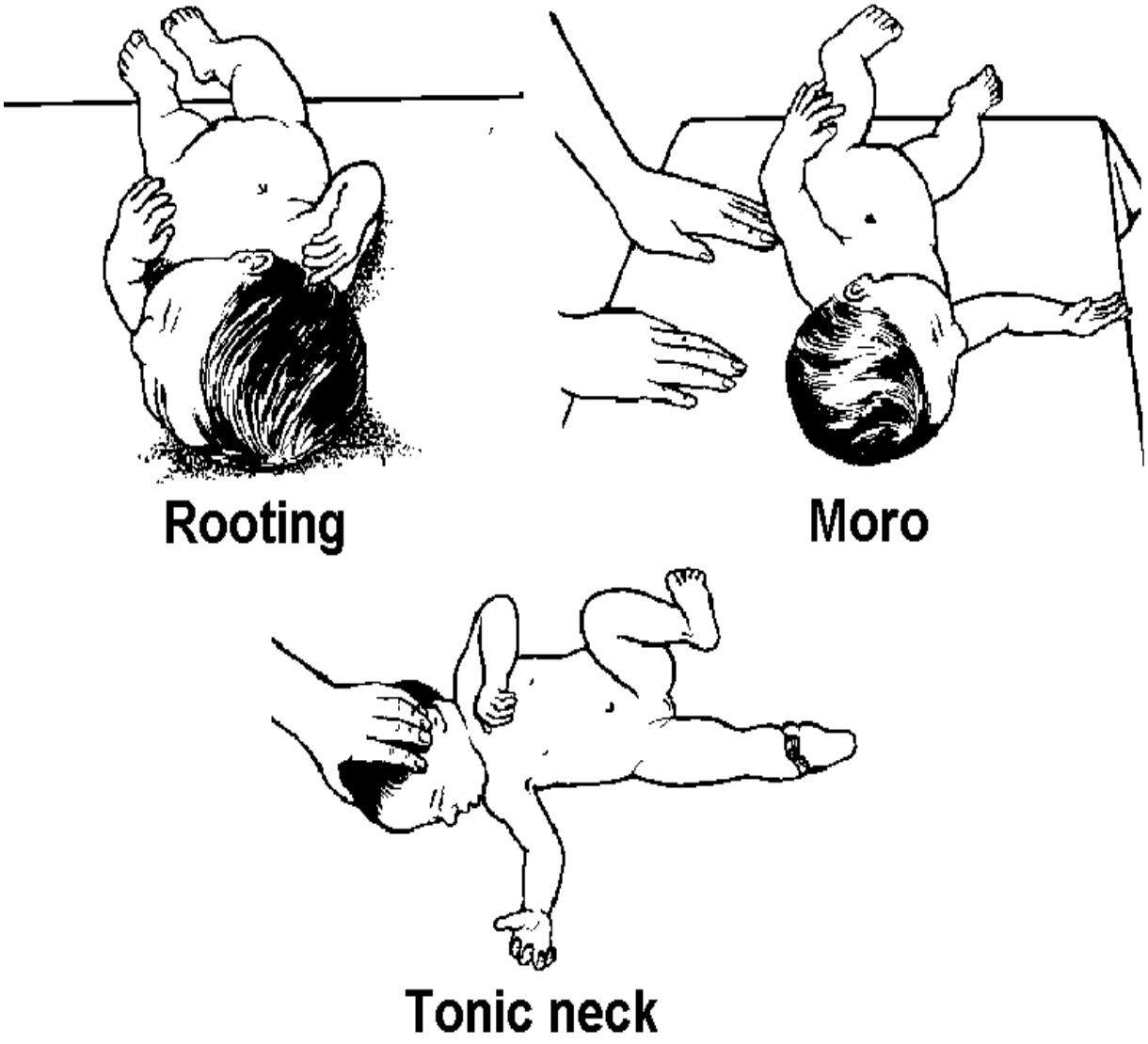


Figure 7-8. Common infant reflexes.

Continue with Exercises

EXERCISES, LESSON 7

INSTRUCTIONS. Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. Why does a newborn infant's skin appear dark red at birth?

   _____

   _____

2. What is the name of the glistening spots that may be found on the infant's palate?

   _____

3. Its capacity is about one to two ounces at birth but increases rapidly.

   _____

4. _____ refers to the first stools after birth and for three to four days afterwards.

5. What is the probable cause of respiratory difficulty in the first few hours of an infant's life? _____

   _____

6. Disturbances in the endocrine system are often related to maternally provided hormones. As a result of these disturbances, what conditions could occur in a newborn infant?

   _____

   _____

For items 7 through 18. The phrase or statement in Column A is closely related or associated with an item in Column B. Place the letter of the related or associated item in Column B in the space provided to the left of the number in Column A.

COLUMN A	COLUMN B
____ 7. Tends to be folded and creased.	a. Body temperature drops after birth.
____ 8. Small white or yellow dots on the infant's nose.	b. 72/80.
____9. A dark or bright red raised, rough surface.	c. Normal respirations.
____10. Blue-black colorations on infant's buttocks.	d. 80/50.
____11. A yellow discoloration that may be seen in the infant's skin.	e. Anterior.
____12. Lemon yellow and curdy.	f. Posterior.
____13. A state of being collapsed at birth.	g. Gradual deposition of pigment.
____14. Result of infant's poorly insulated internal organs.	h. Infant's ears.
____15. Average newborn's BP at birth.	i. Infant's lungs.
____16. Gentle, quiet, rapid, and shallow.	j. Formula stools.
____17. Largest of the two fontanels.	k. Jaundice.
____18. Produces final eye color of infant.	l. Mongolian spots.
	m. Milia.
	n. Hemargioma.

Check Your Answers on Next Page

SOLUTIONS, LESSON 7

1. Layers of subcutaneous fat have not yet covered the capillary beds. (para 7-5)

2. Epstein's pearls. (para 7-6a)

3. Infant's stomach. (para 7-6b)

4. Meconium. (para 7-6c)

5. Liberal use of sedatives, tranquilizers, analgesics, and anesthetics during the birthing process. (para 7-8b)

6. Vaginal discharge and bleeding (females).
   Enlargement of the mammary glands (both sexes). (para 7-9)

7. h (para 7-4b)

8. m (para 7-5f)

9. n (para 7-5g(2))

10. l (para 7-5c)

11. k (para 7-5d)

12. j (para 7-6c)

13. i (para 7-8a)

14. a (para 7-2d(1))

15. b (para 7-2c)

16. c (para 7-2d)

17. e (para 7-3b)

18. g (para 7-4a(1))

End of Lesson 7

LESSON ASSIGNMENT

LESSON 8 Care of the Normal Newborn Infant.

TEXT ASSIGNMENT Paragraphs 8-1 through 8-14.

LESSON OBJECTIVES After completing this lesson, you should be able to:

8-1. Identify terms and definitions that are related to the normal newborn infant.

8-2. Identify procedures used to establish and maintain a newborn infant's airway.

8-3. Identify the common characteristics of a newborn infant's respirations.

8-4. Identify the signs and symptoms of respiratory distress in a newborn infant.

8-5. Identify the procedures for maintaining a newborn infant's body temperature.

8-6. Select the procedures for identifying the newborn infant before leaving the delivery room.

8-7. Identify the best time to begin the parent-infant bonding process.

8-8. Identify the purposes for APGAR scoring of the newborn infant.

8-9. Identify objective signs used for evaluation of the newborn infant.

8-10. Identify procedures for admission of the newborn infant to the nursery.

8-11. Identify procedures for weighing a newborn infant.

8-12. Identify procedures for aspirating fluids from a newborn infant.

8-13. Identify procedures used to evaluate the physical condition of a newborn infant.

8-14. Identify the purpose for administration of vitamin K to a newborn infant.

8-15. Identify the medications used in eye prophylaxis for a newborn infant.

8-16. Identify the two observations for cord care of the newborn infant.

8-17. Identify goals of nursing care for a newborn infant.

SUGGESTION

After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 8

CARE OF THE NORMAL NEWBORN INFANT

8-1. GENERAL

The practical nurse has a unique opportunity of closely observing and providing care for the newborn infant after delivery (see figure 8-1). Because of the newborn infant's helplessness, his needs must be met initially by nursing personnel. Many nursing assessments and evaluations are conducted for the well-being of the infant. Nursing care does not stop with the newborn infant. Interaction with the parents is also important in the development of a family unit.

Figure 8-1. The newborn infant.

8-2. CARE OF THE NEWBORN IN THE DELIVERY ROOM

There are several needs of a newborn infant that require close attention. Establishing and maintaining respirations are the two needs that must be met immediately.

a. **Establishing and Maintaining the Newborn's Airway**. The physician suctions the infant before it is completely born with a bulb syringe or a DeLee trap. A DeLee trap is used if meconium was present in the amniotic fluid. The infant's mouth is suctioned first and then his nose. Once the infant is delivered, his head is held slightly downward to promote drainage of mucus and fluid. The infant's face is wiped thoroughly clean. If the infant doesn't breathe spontaneously, he should be stimulated to cry by slapping his heels, lightly tapping the buttocks, and/or rubbing his back gently. The infant is then positioned with his head slightly down when placed in the radiant warmer. The bulb syringe is used to remove mucus from his mouth and nose (see figure 8-2).

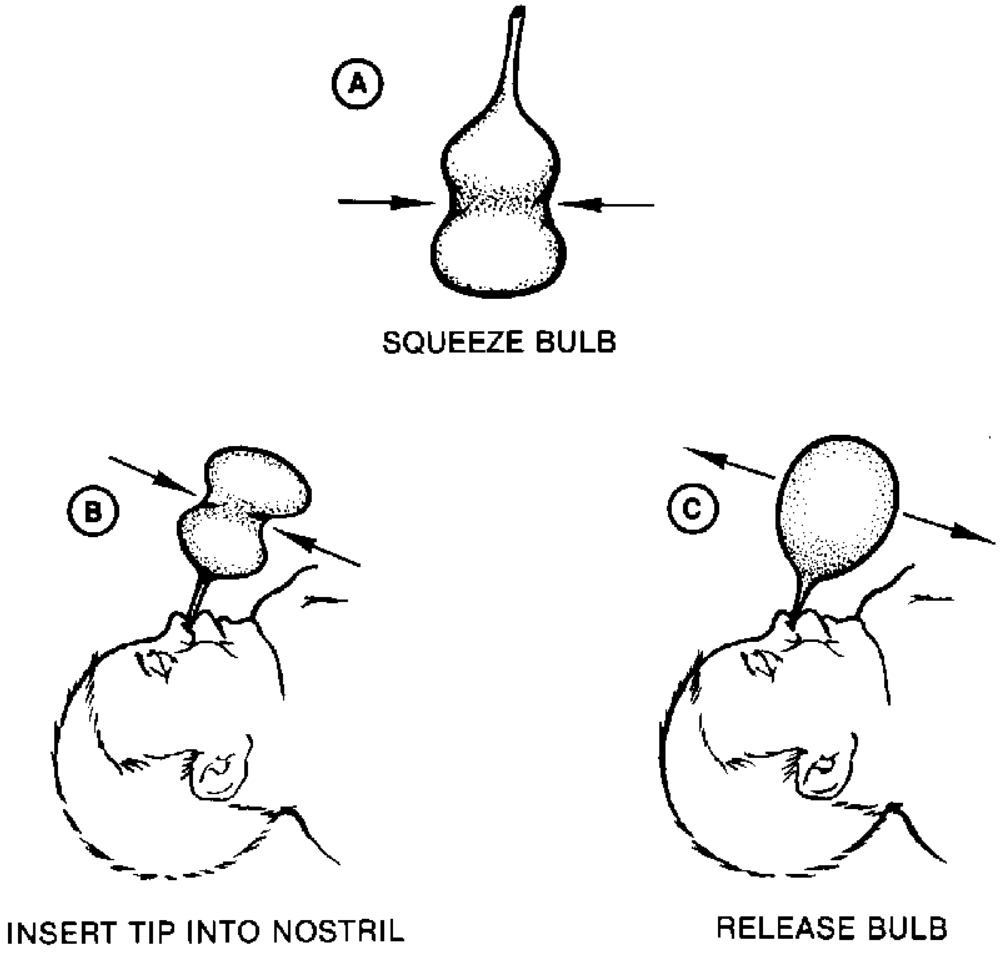


Figure 8-2. Removing mucus from infant's nose.

(1) Common characteristics of newborn respirations.

(a) Nose breathers. Sleeps with mouth closed, does not have to interrupt feedings to breathe.

(b) Irregular rate.

(c) Usually abdominal or diaphragmatic in character.

(d) Ranges from 40 to 60 breathers per minute.

(e) Breathing is quiet and shallow.

(f) Easily altered by external stimuli.

(g) Periods of apnea less than 15 seconds is normal.

(h) Acrocyanosis may occur during periods of crying. **Acrocyanosis** refers to cyanotic look of the baby's hands and feet when he is crying. When the baby stops crying, his hands and feet get pink again.

(2) Signs and symptoms of newborn respiratory distress.

(a) Increased rate or difficulty breathing-growing and seesaw breathing. In normal respirations, the infant's chest and abdomen rise. With seesaw respirations, the infant's chest wall retracts and his abdomen rises with inspirations. See fig. 8-3.

(b) Sternal or subcostal retractions.

(c) Nasal flaring.

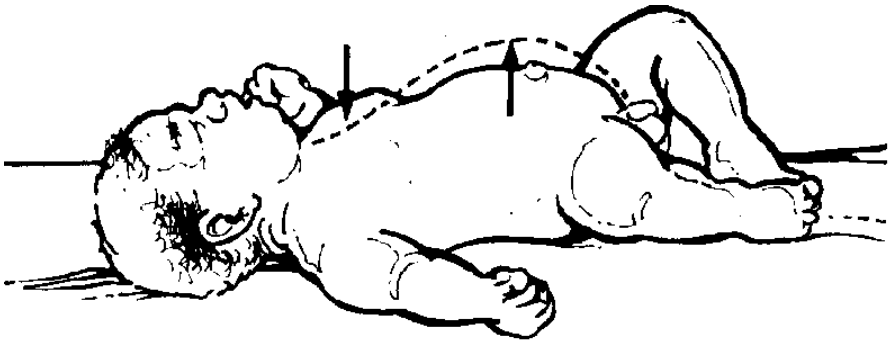


Figure 8-3. See-saw respirations.

(d) Excessive mucus, drooling.

(e) Cyanosis.

b. **Maintaining Body Temperature.**

(1) Dry the infant thoroughly immediately after delivery. The infant is extremely vulnerable to heat loss because his body surface area is great in relation to his weight and he has relatively little subcutaneous weight. Heat loss after delivery is increased by the cool delivery room and the infant's wet skin.

(2) Place the infant in a radiant heat warmer.

(3) Place a stockinette cap on the infant's head to prevent heat loss through the head.

(4) Wrap the infant snugly in a warm blanket.

(5) Place the infant closely to the mother's skin. Skin-to-skin contact with the mother will help prevent heat loss.

c. **Identify the Infant After Delivery**.

(1) The infant must be properly identified before leaving the delivery room. An identification (ID) band is placed on the infant's wrist and leg. An identical band matching the infant's band is placed on the mother's wrist.

(2) The infant's footprints or palm prints placed next to the mother's thumb print is rarely done in most facilities. Each facility has its own instant identification method.

d. **Establish Parent-Infant Bonding Process**.

(1) Parent-infant bonding is the initial step in the process of attraction and response between the newborn and the parents. This paves the way for development of love and affiliation that forms a strong family unit.

(2) This process should begin as soon after delivery as possible. In the delivery room as soon as the infant is dry and identified, he should be given to the parents. The infant is more alert during the first hours (approximately four) after birth than in the immediate subsequent hours.

8-3. VIRGINIA APGAR SCORING OF THE NEWBORN

The initial APGAR scoring is performed in the delivery room by the physician. APGAR scoring is a method of evaluating the condition of the newborn at one minute and at five minutes after delivery. See figure 8-4 for an APGAR scoring chart.

SIGN					
	0	1	2	1 min	5 min
Heart Rate	Absent	Less Than 100	Over 100	2	2
Respiratory Effort	Absent	Slow, Irregular	Good Cry	1	2
Muscle Tone	Limp	Some Flexion	Active Motion	1	2
Reflex Irritability	No Response	Grimace	Cry	1	2
Color	Pale	Body Pink, Extr. Blue	All Pink	1	2
TOTAL SCORE				6	10

Figure 8-4. APGAR scoring chart.

a. **Purpose**. The APGAR scoring chart is used to evaluate the conditions of the baby at birth, determine the need for resuscitation, evaluate the effectiveness of resuscitative efforts, and to identify neonates at risk for morbidity and mortality.

b. **Objective Signs Used for Evaluation**.

(1) Heart rate.

(2) Respiratory effort.

(3) Muscle tone.

(4) Reflex irritability.

(5) Color.

c. **Scoring**.

(1) Evaluations at each of the five categories are initially done at one minute after birth.

(2) Each item has a maximum score of two and a minimum score of zero.

(3) The final APGAR score is the sum total of the five items, with a maximum score of ten. The higher the final APGAR score, the better condition of the infant.

(4) Evaluations at one minute quickly indicate the neonate's initial adaptation to extrauterine life and whether or not resuscitation is necessary.

(5) The five-minute score gives a more accurate picture of the neonate's overall status, including obvious neurologic impairment or impending death.

8-4. PROCEDURE FOR ADMISSION TO THE NURSERY

a. Carry out the hospital policy for gowning and the three-minute scrub. If you are already wearing scrubs, it is not necessary to gown. If the initial scrub has already been completed when coming on duty, a one-minute scrub is acceptable.

b. Receive the infant from the transporter. Take the infant from the transporter or the transporter's arms. Verify the ID bracelet on the infant's arm and leg with the delivery room personnel. Make sure the information is accurate (i.e., mother's name, sex of the infant, date and time of birth, and doctor's name). Take the report from the delivery room person. The report concerns pertinent information of the mother's labor and of the newborn's birth.

c. Remove the delivery room blanket from the infant.

d. Weigh the infant. Place a protective paper cover over the scale first and make sure the scale is balanced. Place the infant on the scale. Document the infant's weight on the:

(1) SF 510, Nursing Notes.

(2) Delivery room record.

(3) Instant data card.

e. Place the infant in an open warmer for the remainder of the admission procedures to maintain adequate temperature.

(1) Measure the infant (see figure 8-5).

(a) Length (from top of head to the heel with the leg fully extended).

(b) Head circumference - repeat after molding and caput succedaneum are resolved.

(c) Chest circumference (at the nipple line).

(d) Abdominal circumference.

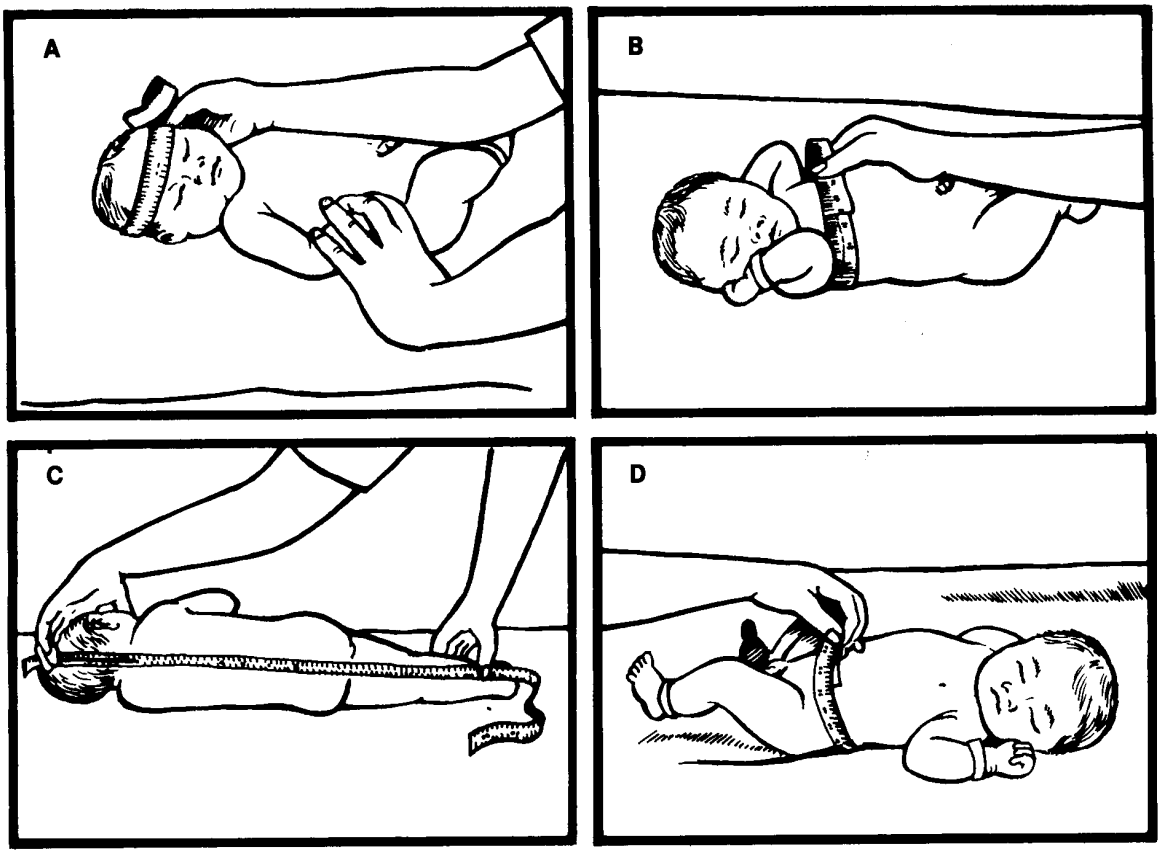


Figure 8-5. Measuring infant.

(2) Record measurements in inches and centimeters.

(3) Document the information in the appropriate areas on SF 510, Nursing Notes, the delivery room record, and the instant data card.

(4) Take infant's vital signs and document on SF 510, Nursing Notes and the delivery room record.

(a) Temperature-only the first one is done rectally, the remainder are axillary.

(b) Heart rate and respirations-count a full minute because of the irregularities in rhythm.

NOTE: See figure 8-6 for taking the infant's temperature and figure 8-7 for normal neonatal vital signs.

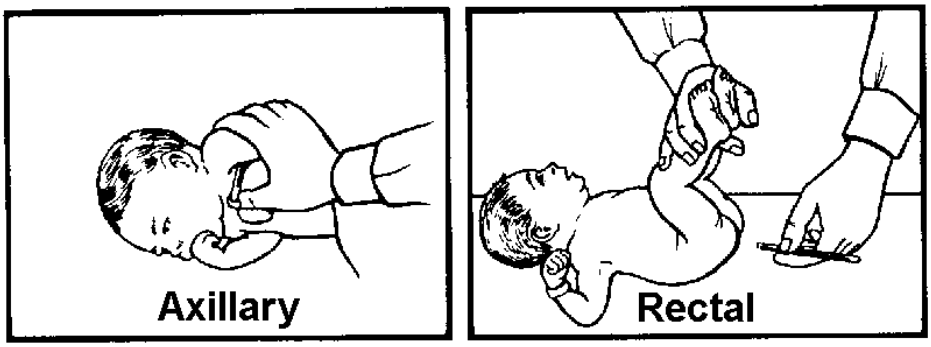


Figure 8-6. Taking infant's temperature.

RESPIRATION

Normal Variations

30 to 60 respirations per min
Average - 40 respirations per min

HEART RATE (APICAL)

Normal Variations

100 to 160 beats per min
100 while sleeping
160 while crying

TEMPERATURE

Rectal

90.0° F to 99.5° F
(35.6° C to 37.5° C)

Axillary

97.6° F to 98.6° F
(36.5° C to 37.0° C)

BLOOD PRESSURE (AT BIRTH)

Average

75/42

Systolis

60 to 80 mm Hg

Diastolic

40 to 50 mm Hg

Figure 8-7. Normal neonatal vital signs.

f. Aspirate fluids.

(1) Aspirate the infant's mouth and nose gently with a bulb syringe.

(2) Insert a number 5 French catheter into the baby's nares to check for patency.

(3) Insert a number 8 French catheter in the baby's mouth down into the stomach and gently aspirate stomach contents.

(4) Record the color and amount of aspirate on SF 510, Nursing Notes and on the delivery record sheet.

g. Evaluate the infant's physical condition.

(1) Note the infant's cry, color, and activity for signs of respiratory distress throughout the assessment.

(2) Do a complete head-to-toe assessment, looking for any gross abnormalities on his hands, feet, palate, spine, and so forth.

(3) Document if the infant voids or passes meconium.

(4) Document presence of reflexes (dealt with more extensively in the typical newborn).

(a) Moro.

(b) Sucking.

(c) Grasping.

(5) Count the number of vessels in the cord and document.

(6) Assess head for molding, caput succedaneum, or cephalhematoma and document in appropriate records.

(7) Observe and record any birthmarks.

h. Place the infant on his side (see figure 8-8) to promote drainage of mucus. Note that he is supported by a pillow to his backside.

Figure 8-8. Infant placed on his side.

i. Provide for infant's safety while in open warmer.

j. Place the infant in an isolette if his temperature is below 98°F rectally. If the infant's temperature is above 98ºF rectally, place him in an open crib.

NOTE: Step "j" is done after the initial assessment and procedures are completed.

8-5. ADMINISTRATION OF VITAMIN K

Vitamin K is given as a prophylaxis for hemorrhagic disease. It is administered intramuscular (IM) in the vastus lateralis muscle (see figure 8-9).

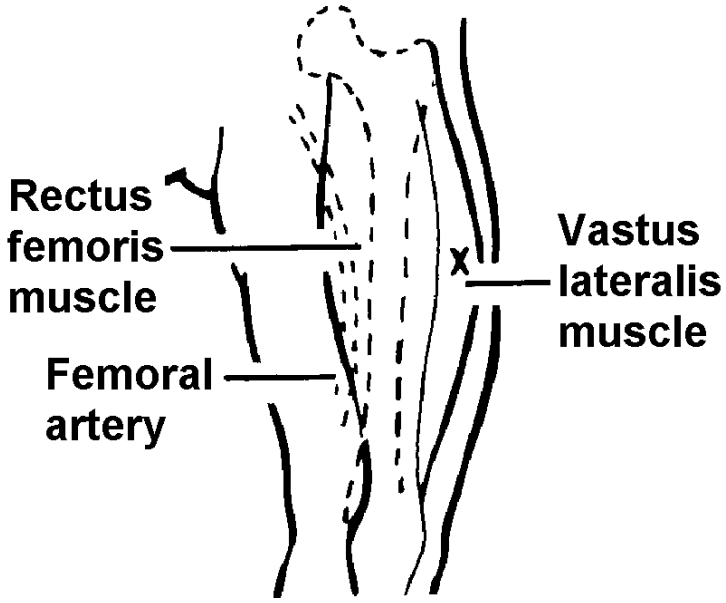


Figure 8-9. Intramuscular injection.

8-6. EYE PROPHYLAXIS FOR THE NEWBORN

This procedure is required by law in all states as prophylaxis against gonorrhea. The medications used are as follows:

a. **Erythromycin Ophthalmic Ointment**. This has become the drug of choice and is received in a sterile syringe from the pharmacy. It is injected into each eye from the inner to outer canthus immediately after birth (see figure 8-10). It does not appear to cause much eye irritation.

b. **1% Silver Nitrate Solution**. Two drops are applied in each eye in the conjunctival sac, not the cornea. The infant eyes may or may not be irrigated after instillation, depending on local policy. The infant may get profused discharge and chemical conjunctivitis for a few days with no residual damage. **One percent silver nitrate solution is no longer recommended for use**.

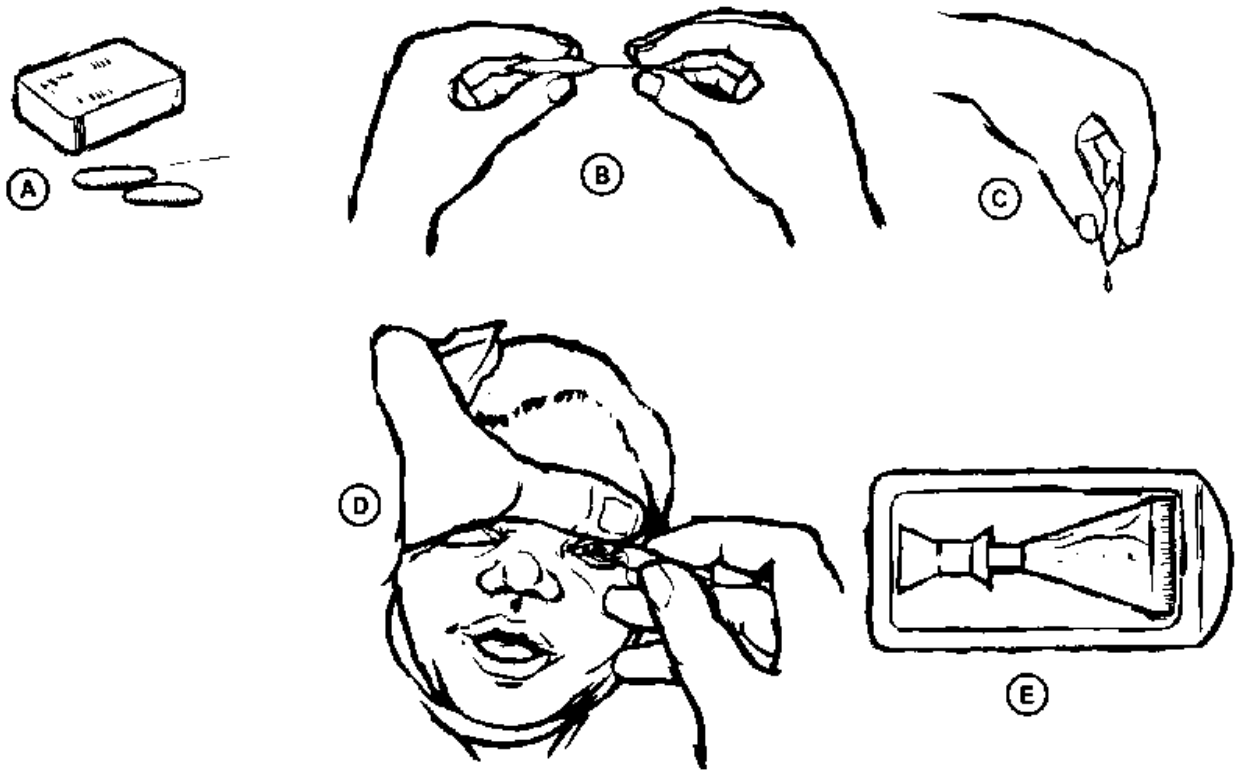


Figure 8-10. Administration of erythromycin ophthalmic ointment.

8-7. INITIAL BATH

a. The amount of time required for the initial bath is determined by local policy. If the infant's temperature is greater than 98ºF rectally, the bath may be done after all admission procedures are done. Otherwise, wait until the infant's temperature has stabilized above 98ºF.

b. The procedure for actually completing the bath is also determined by local policy. Allow the parent to participate if possible. Remove as much of the vernix as possible. Some may not come off during the first bath because it is so "sticky."

8-8. CORD CARE FOR THE NEWBORN INFANT

a. Inspect the cord frequently for signs of bleeding immediately after it has been cut.

b. Apply triple dye (refer to local policy) to the cord after the infant has had his bath and has been determined to be stable. The dye prevents infection and helps the cord to dry.

c. Swab the cord with alcohol at least three times per day (refer to local policy). The alcohol aids in drying.

d. Observe for cord detachment. The cord detaches in ten to fourteen days. The cord dries faster when left uncovered. Have the parents roll the infant's diaper down some in front initially so the cord is not covered.

e. Observe for signs of infection and report findings immediately. The signs of infection are purulent drainage, redness, and possible swelling (more than usual).

8-9. BONDING PROCESS

a. Bonding should be initiated in the delivery room.

b. The significant other should be allowed to participate in as much of the care as possible during the admission process to develop the bond between him and the infant.

c. Transport the infant back to the mother as soon as local policy allows to take advantage of the alert state newborns have during those first few hours after birth.

(1) This is considered a critical time for both individuals to interact and get to know one another.

(2) It is an excellent time to establish breast-feeding while the infant is awake.

(3) Approximately the first four hours after delivery, the infant returns to a sleep state or less alert state.

8-10. INFANT BAPTISM

a. Baptism is performed for infants who are in imminent danger of death and whose parents are Roman Catholic or certain other Christian denominations.

b. The nurse may perform the baptism by pouring a small amount of warmed water on the infant's head and saying, "I baptize thee in the name of the Father, and of the Son, and of the Holy Spirit." A record of the baptism is made in SF 510, Nursing Notes. The parents are notified about the baptism.

8-11. COMPLETE INSPECTION OF THE NEWBORN

A complete inspection of the newborn infant is performed within 24 hours after delivery. The goal is to compile a complete record of the newborn that will act as a database for subsequent assessment and care.

a. Assemble necessary equipment.

(1) Pediatric stethoscope.

(2) Penlight.

(3) Tape measure.

(4) Rectal thermometer.

(5) Infant scale.

b. Wash hands for a full three minutes.

c. Approach and identify the infant.

d. Provide for a warm, well-lighted, draft-free area, keeping the infant undressed for as short a time as possible.

e. Place the infant on a flat, protected surface.

f. Take the infant's temperature. The infant's temperature is taken rectally only on admission. Subsequent temperatures are to be taken by the axillary method.

g. Determine the infant's apical heart rate. Count for a full minute.

h. Determine the infant's respiratory rate. Count for a full minute. Note any signs of respiratory distress (retractions, grunting, nasal flaring) rate over 60 bpm, or periods of apnea. Auscultate the infant's lungs.

i. Balance the scale.

j. Weigh the naked infant. Most newborns weigh between six to nine pounds (2,700 and 4,000 grams). Record the weight in pounds and ounces, as well as in grams.

k. Measure the infant's length from top of the head to the heel with the leg fully extended and record measurements.

l. Measure the infant's head circumference and record measurements. The normal head circumference is 13 to 14 inches (33 to 35 cm). Cranial molding from a vaginal delivery may affect this measurement. The measurement should be repeated on the second and third day after delivery.

m. Measure the infant's chest circumference at the nipple line and record the measurement.

n. Observe the general contour of the infant's head. Gently palpate the sutures and fontanelles. The anterior fontanelle is approximately two inches long and is gem/diamond shaped. The posterior fontanelle is smaller than the anterior fontanelle.

Normally, the fontanelle feels soft and is either flat or slightly indented. The anterior fontanelle usually bulges when the infant cries, coughs, or vomits.

o. Observe the general appearance of the infant's neck. The infant's neck is usually short, thick, and covered with folds of tissue. The infant should be able to move his neck from side to side, from flexion to extension, and can hold his head in the midline position.

p. Observe the infant's eyes for symmetry of size and shape. Note the infant's eye movements. Strabismus caused by poor neuromuscular control is normal. An infant older than ten days should look in the direction in which you turn. Note the color of the infant's eyes.

q. Inspect the infant's ears for structure, shape, and position. The ears should be firm with wee-formed cartilage. Tops of the auricles should be parallel to the outer canthus of the eye (refer to figure 7-5).

r. Inspect the infant's nose for patency.

s. Inspect the infant's mouth for cleft palate by gently depressing his tongue when he cries. Check the mucous membranes. Observe the soft and hard palate. Make sure they are in tact.

t. Inspect the infant's skin and nails. Observe for jaundice, birthmarks, milia, petechiae, and lanugo. Observe the infant's hands and feet for normal creases. Observe the color of the infant's nail beds; they should be pink. Acrocyanosis may be present up to 24 degrees, especially when the infant is crying.

u. Inspect the size, shape, and symmetry of the infant's chest. Normally, an infant's chest is circular or barrel-shaped. The breast tissue of both male and female infants may be slightly engorged during the first few days of life.

v. Palpate the infant's peripheral pulses (femoral, brachial, and radial).

w. Inspect the size and shape of the infant's abdomen. The abdomen should be cylindrical in shape. Sunken or distended abdomen should be reported. Check the umbilical cord for the number of vessels.

x. Auscultate the infant's abdomen for bowel sounds. Bowel sounds should be present within one to two hours after birth.

y. Observe for excessive drooling, coughing, gagging, or cyanosis during feeding.

z. Place the infant on his abdomen and observe his spine for curves, masses, or abnormal openings.

aa. Inspect the male infant's genitalia. The penis should be checked for location of the urinary meatus. The scrotum may appear edematous and proportionately large.

bb. Inspect the female infant's genitalia. The labia majora may appear edematous and cover the clitoris and the labia minora.

cc. Observe the infant's spontaneous or involuntary movements for symmetry, spasticity, or rigidity. Gently straighten his arm or leg. Release it and observe whether it returns to its normal position. If the extremity remains limp, the infant may be hypotonic. If the extremity is difficult to straighten and rapidly flexes when released, he may be hypertonic.

dd. Dress the infant carefully and return him to his bassinet.

ee. Record all significant nursing observations in the infants' health record. Report your observations to the Charge Nurse.

8-12. PHENYLKETONURIA TEST

A phenylketonuria (PKU) test is done to check for rising levels of phenylalanine. Phenylalanine is a naturally occurring amino acid essential to growth. After milk or formula (both contain phenylalanine) feedings begin, levels rise due to a deficiency of the liver enzyme that converts phenylalanine to tyrosine. Due to this metabolic deficiency, poisons build up in the bloodstream and cause mental retardation. If the infant is found to have rising levels of phenylalanine, many protein foods can be withheld from the diet and synthetic foods substituted. The following steps are performed to collect a blood specimen for a PKU test on the newborn infant.

a. Ensure that the infant has been on milk or formula feeding for three full days. Four days are preferred.

b. Explain to the parents the purpose of the test

c. Perform a heel stick to obtain needed specimen (see figure 8-11).

d. Place one drop of blood on each of the three circles on the filter paper or in accordance with local policy.

e. Label and transport the specimen to the laboratory.

f. Notify the parents of follow-up care of the infant, if the infant is discharged prior to his third or fourth day of life. This test must be done.

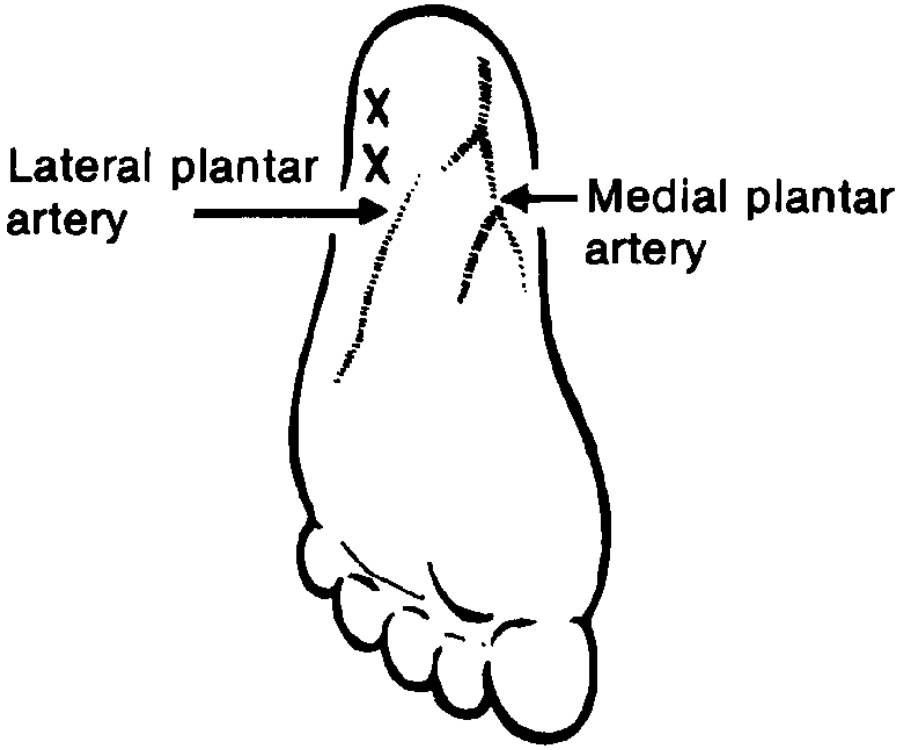


Figure 8-11. Puncture site (X) on sole of infant's foot for heelstick sample.

8-13. GOALS OF NEWBORN NURSING CARE

a. To continue appraisal of the newborn throughout his hospital stay.

   (1) Observe and record the infant's vital signs.

   (2) Monitor weight loss or gain (daily by some local policy).

   (3) Monitor bowel and bladder function.

   (4) Monitor activity and sleep patterns.

   (5) Monitor interactions and bonding with parents.

b. To provide safeguards against infection (that is, handwashing).

c. To initiate feedings.

d. To provide guidance and health instruction to parents.

8-14. DISCHARGE CONSIDERATION FOR THE NEWBORN AND FAMILY

a. Planning for discharge should begin at time of admission. An infant in normal health is discharged from the hospital at the same time as the mother.

b. Instructions for parents (teaching should be continuous).

(1) Feeding schedule.

(2) Bathing routine.

(3) Home care needs.

(4) Umbilical cord stump care.

(5) Infant safety in the car.

c. Prior to discharge, a follow-up appointment date should be arranged for the newborn (local policy determines the date-two, four, or six weeks).

d. A final identification check of the mother and the infant must be performed before the infant can be allowed to leave the hospital.

Continue with Exercises

EXERCISES, LESSON 8

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. What two objects may be used in establishing and maintaining the airway of a newborn infant?

   _____

   _____

2. List six of the eight characteristics of a newborn's respirations.

   _____

   _____

   _____

   _____

   _____

   _____

3. Why is a stockinette cap placed on a newborn's head?

   _____

4. What is the first step in the process of attraction and response between the newborn and the parents?

   _____

5. What are the objective signs of evaluation in APGAR scoring?

   _____ _____

   _____ _____

   _____

6. APGAR scoring is done two times in the delivery room, at _____ and _____ after delivery.

7. The infant's weight is documented in pounds and centimeters. Where is the weight documented?

   _____

   _____

   _____

8. Vitamin K is administered intramuscular in the _____ muscle.

9. How long should you initially bathe a newborn?

   a. 1 minute.

   b. 2 minutes.

   c. 5 minutes.

   d. Local policy will specify.

10. When should "bonding" begin?

    a. In the delivery room.

    b. In the nursery room.

    c. After 24 hours of delivery.

    d. There is no specific time frame.

11. When is a complete inspection of the newborn performed?

    a. Immediately after delivery.

    b. Within 6 hours after delivery.

    c. Within 24 hours after delivery.

    d. One hour before the infant is discharged from the hospital.

12. What conditions are you looking for when inspecting a newborn's skin and nails?

    _____ _____

    _____ _____

    _____

13. The infant's abdomen should be _____ in shape.

14. How long should an infant be on milk or formula feeding before a PKU test is performed.

    _____

15. List the goals of newborn nursing care.

_____

_____

_____

_____

16. What instructions are given to the parents upon discharge?

_____

_____

_____

_____

17. When is triple dye applied to the infant's cord?

_____

Check Your Answers on Next Page

SOLUTIONS, LESSON 8

1. Bulb syringe.
   DeLee trap. (para 8-2a)

2. Any six of the eight listed below.

   Nose breathers.
   Irregular rate.
   Usually abdominal or diaphragmatic in character.
   Ranges from 40 to 60 breathers per minute.
   Breathing is quiet and shallow.
   Easily altered by external stimuli.
   Periods of apnea less than 15 seconds is normal.
   Acrocyanosis may occur during periods of crying. (para 8-2a(1)

3. To prevent heat loss through the head. (para 8-2b(3))

4. Parent-infant bonding. (para 8-2d(1))

5. Heart rate.
   Respiratory effort.
   Muscle tone.
   Reflex irritability.
   Color. (para 8-3b)

6. One minute.
   Five minutes. (para 8-3)

7. SF 510, Nursing Notes.
   Delivery room record.
   Instant data card. (para 8-4d)

8. Vastus lateralis. (para 8-5)

9. d (para 8-7a)

10. a (para 8-9a)

11. c (para 8-11)

12. Jaundice.
    Birthmarks.
    Milia.
    Petechiae
    Lanugo. (para 8-11t)

13. Cylindrical. (para 8-11w)

14. Three full days. (para 8-12a)

15. To continue appraisal of the newborn throughout his hospital stay.
    To provide safeguards against infection.
    To initiate feedings.
    To provide guidance and health instruction to the parents. (para 8-12)

16. Feeding schedule.
    Bathing routine.
    Home care needs.
    Umbilical cord stump care.
    Infant safety in the car. (para 8-14b)

17. After the infant has been bathed and determined stable. (para 8-8b)

End of Lesson 8

LESSON ASSIGNMENT

LESSON 9 Newborn Nutrition.

TEXT ASSIGNMENT Paragraphs 9-1 through 9-10.

LESSON OBJECTIVES After completing this lesson, you should be able to:

9-1. Identify terms and definitions that are related to newborn nutrition.

9-2. Select the nutrition requirements of the newborn to include the two basic minerals (calcium and iron).

9-3. Identify descriptive statements that refers to the first feeding.

9-4. Identify the three types of formula.

9-5. Identify factors used to determine the choice of formula.

9-6. Identify the instructions which should be followed when formula feeding.

9-7. Identify the advantages of formula feeding.

9-8. Identify descriptive statements referring to initial breast-feeding techniques.

9-9. Identify the advantages of breast-feeding.

9-10. Identify the contraindications of breast-feeding.

9-11. Identify seven common breast-feeding problems.

9-12. Identify the nursing interventions for the seven common breast-feeding problems.

9-13. Identify the methods for bubbling a baby.

9-14. Select methods used to evaluate the newborn's nutritional status.

9-15. Identify the weight changes that babies go through after birth.

SUGGESTION

After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 9

NEWBORN NUTRITION

9-1. GENERAL

Newborn nutrition is a vital part of the well-being of an infant. The period of rapid growth in infancy requires careful nutritional support to continue the growth and development that began at conception. The first decision that parents need to make about feeding their infant is whether to breast-feed, bottle feed, or a combination of both. An early assessment of feeding should have began during the first months of pregnancy. Nutritional information should be provided so that an informed decision can be made. It is important that the parents know that there is a relationship between food and health. They should be given basic information about their infant's nutritional needs and how they relate to breast milk, formula, or solid foods. After the baby is born, feeding practices should be examined, modified where necessary, and reinforced. Proper nutrition is essential for optimal growth and development of the newborn infant.

9-2. NUTRITIONAL REQUIREMENTS OF THE NEWBORN

a. **Fluid**. Newborns require more fluid relative to their size than adults require. Additional fluids are required with fever, diarrhea, and vomiting.

(1) Dehydration. Until the ability to retain body water through kidney function improves in the early months of life, the infant is at risk for dehydration. Signs of dehydration are:

(a) Depressed fontanels.

(b) Rapid, weak pulse.

(c) Elevated low-grade temperature.

(d) Dark, concentrated urine.

(e) Dry, hard stools.

(f) Dry skin with little turgor.

(g) Elevated specific gravity (1.020).

(2) Water. Prepared infant formulas provide sufficient water under normal environmental conditions. Water intoxication may result from excessive feeding of water to infants. It may occur when water is fed as a replacement for milk. Signs of water intoxication are:

(a) Hyponatremia.

(b) Weakness.

(c) Restlessness.

(d) Vomiting, diarrhea.

(e) Polyuria or oliguria.

(f) Convulsions.

(3) Nursing care.

(a) Maintain accurate input and output (I&O).

(b) Observe frequently for signs of dehydration or water intoxication.

b. **Vitamin, Mineral, and Caloric Requirements**.

(1) The newborn's rapid growth makes him especially vulnerable to dietary inadequacies and iron deficiency anemia. Adequate vitamin intake is especially important to support normal growth and metabolism. When the mother is well-nourished throughout her pregnancy, the full-term neonate can be expected to have adequate vitamin stores at birth. Calcium and iron are the two basic minerals that are of particular importance in maintaining adequate nutrition.

(a) Calcium is essential for the rapid bone mineralization that takes place during the first year of life, muscle contraction, blood coagulation, nerve irritability, tooth development, and heart muscle action.

(b) Iron is an essential element needed for synthesis of hemoglobin and cell metabolism.

(2) Due to the limited nutritional stores, newborns require vitamin and mineral supplements. An infant may become hypoglycemic and require feeding sooner than normal. His blood glucose is checked at one hour of age and if it is decreased, the baby is first fed sips of water to ensure sucking swallowing coordination and is then fed formula to increase calories and decrease utilization of glucose.

9-3. FIRST FEEDING FROM THE MOTHER

Signs of hunger are demonstrated by the infant searching for food, sucking motions, and crying. The mother may begin to breast-feed at this time if she had planned to breast-feed, her condition is stable, and she desires to feed the infant. See figure 9-1 for common breast-feeding positions

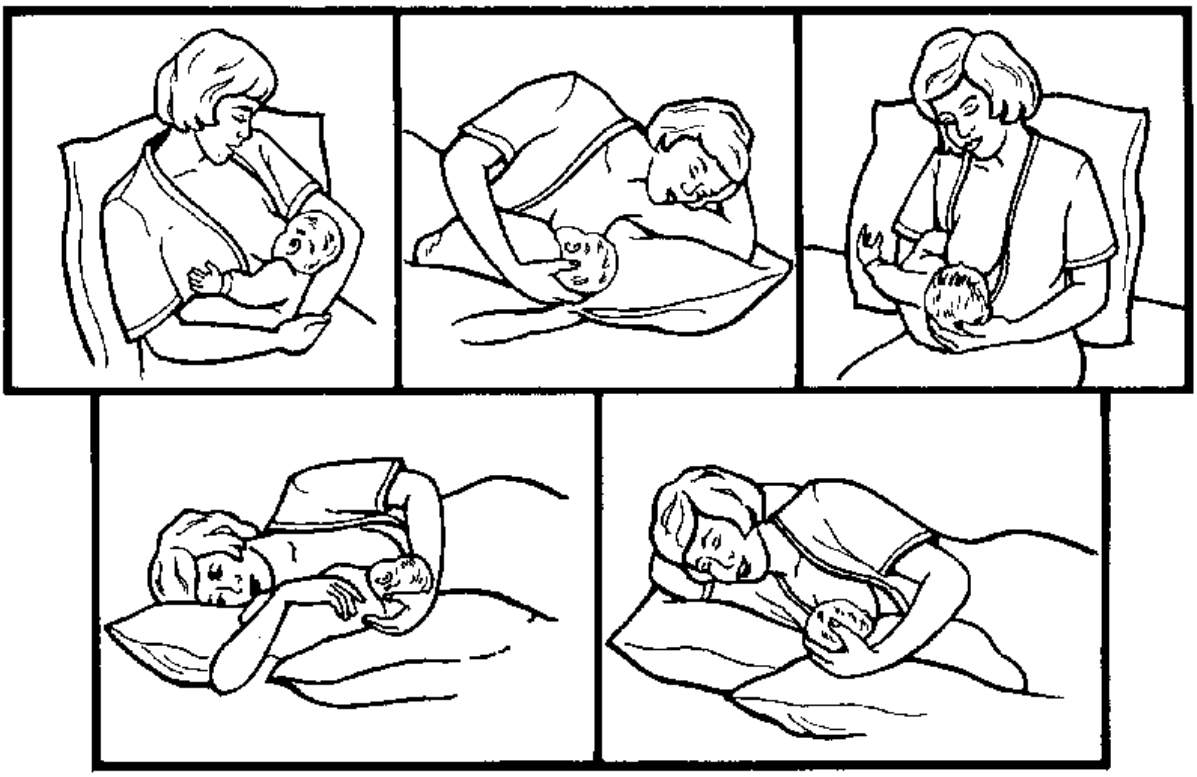


Figure 9-1. Common nursing positions.

9-4. FORMULA FEEDINGS

a. **Formula Requirements**. A formula must satisfy the infant's requirements for water, calories, vitamins, and minerals. Commercially prepared formulas are made according to established standards.

b. **Types of Formulas**.

(1) Ready-to-feed. These are liquids packaged in cans and bottles. They are convenient and considered relatively expensive.

(2) Concentrate. These are packaged in cans and are to be diluted 1:1 with water. This is less expensive.

(3) Powder. This must be mixed thoroughly with water and may have difficulty dissolving. This is considered the least expensive.

c. **Formula Preparation in the Home**.

(1) The choice of method is determined by the type of formula used, the safety of the home water supply, the availability of adequate refrigeration, the ability to utilize the method, and the amount of formula needed each day.

(2) The aseptic method is used when preparing formula. Cleaning the equipment before preparing the formula is essential. Formula is prepared according to directions and bottles assembled. As long as refrigeration is available, any number of bottles may be prepared.

d. **Instructions for Feeding Formula**.

(1) Formula at room temperature is usually well tolerated by the infant.

(2) Feeding should take place in a comfortable setting and in an unhurried manner.

(3) The newborn should be held in an elevated position (see figure 9-2). Bottles should not be propped because of the danger of the choking and aspiration.

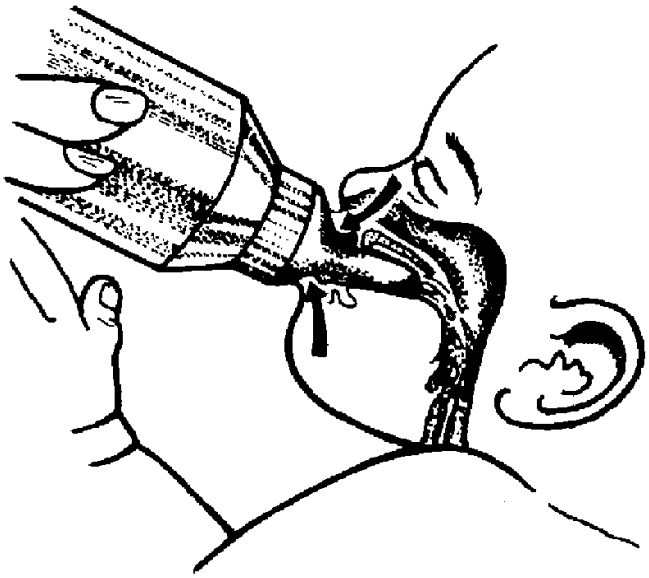


Figure 9-2. Feeding infant.

(4) An increased amount of air may be sucked in if the infant is fed when lying flat.

(5) The bottle should be tilted to keep the nipple filled with milk/formula at all times.

(6) When the infant is held close during feedings, he gets more enjoyment from the security of being held by the parent or other person.

(7) Air bubbles can be seen going up into the bottle during feeding. This indicates that the baby is getting the formula.

(8) The infant must take at least one ounce every four hours.

e. **Advantages of Formula Feeding**.

(1) The mother can be sure the baby is getting enough milk for nutrition.

(2) There is an opportunity for other members of the family to get close to the baby. This allows the mother to give more of her time to her other children, to herself, or to her husband.

9-5. BREAST-FEEDING

a. **Preparation of the Nipples.** Preparation of the nipples should begin during pregnancy.

(1) Roll nipples. The mother should roll her nipples with her thumb and forefinger two to three times each day (see figure 9-3).

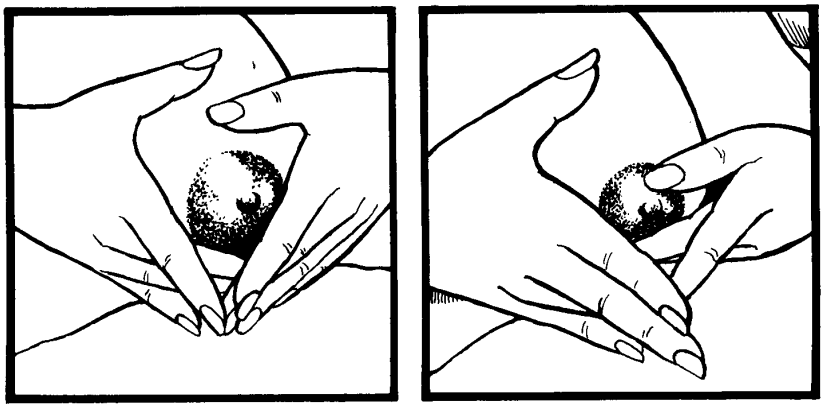


Figure 9-3. Nipple rolling.

(2) Massage breast (see figure 9-4).

Figure 9-4. Massaging the breasts.

(a) Place hand over the other above the breast.

(b) Gently, but firmly, exert pressure evenly with the thumbs across the top and fingers underneath the breast.

(c) Come together with the heel of the hand on each side and release at the areola, being careful not to touch the areola and nipple.

(d) Gently lift the breast from beneath and drop lightly.

NOTE: The above procedure should be repeated 4 to 5 times with each breast.

(3) Roughen nipples with a towel.

b. **Initiation of Breast-feeding**.

(1) Initial feeding is usually with one ounce of sterile water to determine if the newborn can swallow. The mother should begin feeding with five minutes of actual sucking time on each breast and increase feeding time after the baby has fed three consecutive times without difficulty. Each feeding should be initiated by alternating the breasts. The baby may receive glucose water after feeding until the milk comes in the breast.

(2) The advantages of breast-feeding are as follows:

(a) Colostrum contains less fat and sugar and more protein and salts than breast milk. It also contains large amounts of antibodies and vitamins and acts as a laxative to help expel meconium.

NOTE: Colostrum is the thin yellowish fluid secreted for the first several days after birth. Colostrum comes before the milk in the mother's breast.

(b) Protein is more digestible than cow's milk.

(c) The fat that is present is rich in essential fatty acids needed for brain growth.

(d) Colostrum contains lactose, which favors the development of bacteria in the intestines that serves as a protective function during infancy.

(e) The calcium-to-phosphorous ratio is ideal for the absorption of calcium needed for bone growth.

(f) It appears less likely to produce an obese child, promotes better tooth and jaw alignment, and protects against allergy development during infancy.

(g) Breast-feeding is convenient and eliminates formula preparation.

(h) Breast-feeding is economical.

c. **Contraindications**.

(1) Nipple or breast lesions may appear (depending on the type).

(2) If the mother becomes pregnant, the milk will usually start to dry up.

(3) Maternal illness.

(4) Need of mother to return to work (although excellent battery operated breast pumps are now available and very inexpensive).

(5) Inability of the mother to psychologically adjust.

(6) A woman with cardiac or established renal disease may be discouraged from nursing.

(7) Infections.

d. **Common Breast-Feeding Problems**.

(1) Delayed milk production (see figure 9-5). This is usually the earliest of breast-feeding problems. It occurs if the baby is not breast-fed within a short time after birth or not fed frequently enough.

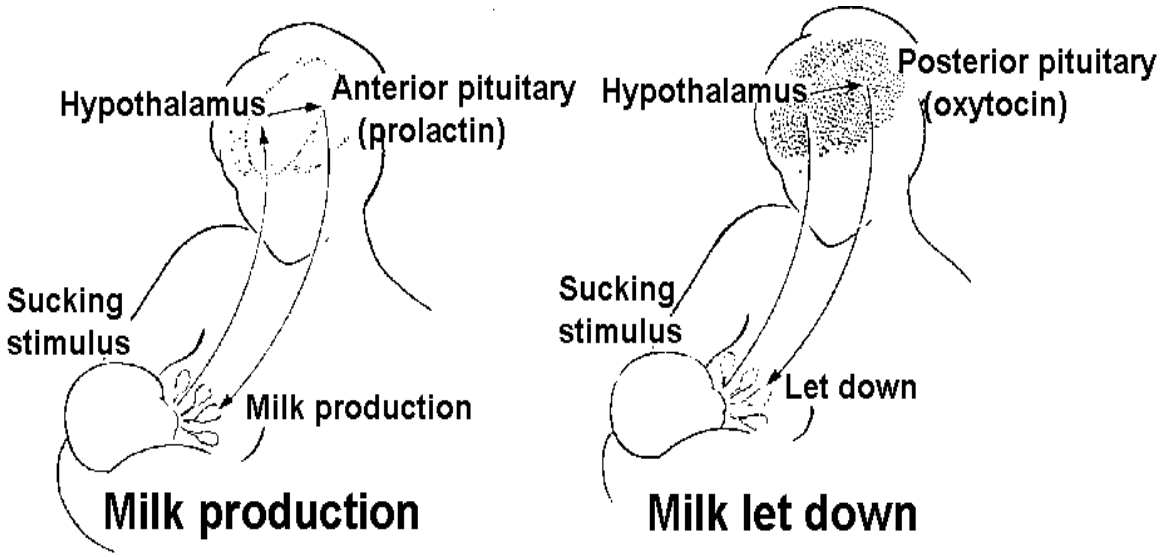


Figure 9-5. Maternal breast-feeding reflexes.

(2) Sore breasts.

(a) The mother should let the baby breast-feed initially for ten to thirty minutes every two to three hours and gradually increase the amount of time. If her breasts are not empty after feeding, have the mother to express the milk into a bottle and refrigerate for later feedings.

(b) Improper position may cause soreness. Advise the mother that the infant should have a portion of the areola, in addition to the nipple in his mouth (see figure 9-6). Just chewing or sucking on the nipple may cause breast soreness.

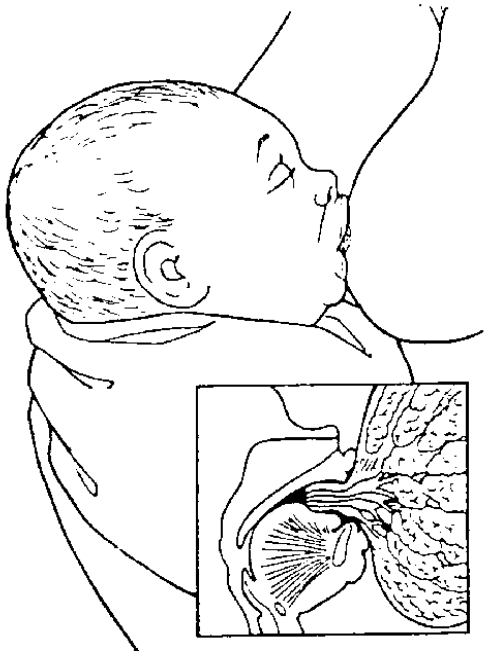


Figure 9-6. Proper breast position.

(3) Engorgement. This normally occurs on or about the third postpartum day. It results from an increase of milk into the milk ducts combined with increased blood and lymph supply to the breast. The breast becomes hard and painful. It is usually more common in the first-time breast-feeding mother. Engorgement can be prevented by:

(a) Manual expression of milk (figure 9-7) if the breasts are full but the infant is not ready to nurse, or if the infant can't get hold of the nipple because the skin is too tight.

(b) Wearing a supportive bra.

(c) Frequent nursing, if not too painful.

(d) Warm compresses applied to the sore breasts.

NOTE: The thumb and forefinger are placed on opposite sides of the breast just behind the areola. The lactiferous sinuses (ampulla A) are compressed, and milk is forced out.

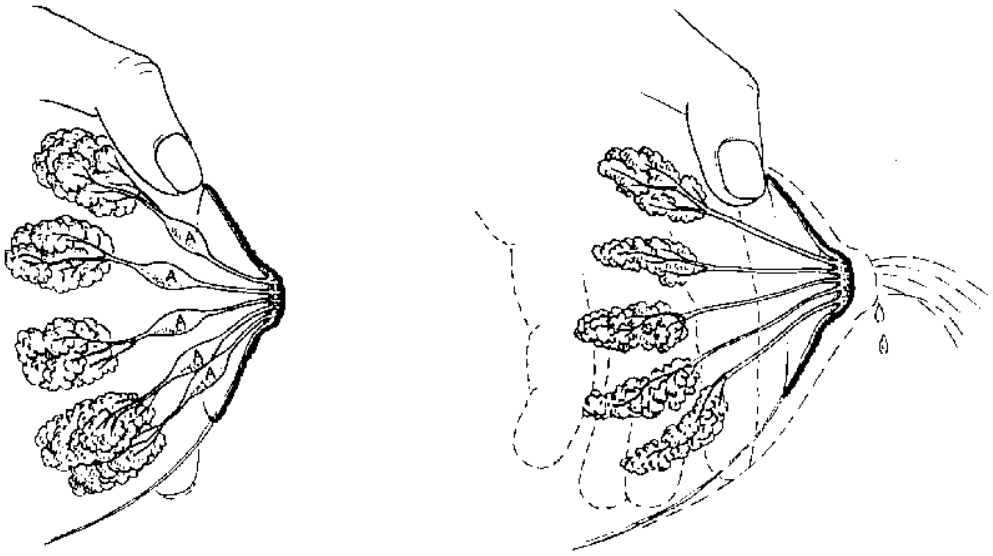


Figure 9-7. Manual expression of milk.

(4) Leaking breasts.

(a) This is a common annoyance. A conditioned response will occur in the mother when she sees or hears a baby that causes the milk to let down.

(b) The mother should fold her arms across her breasts and press them firmly against her chest wall. This will stop the leaking. Advise her to place absorbent pads in her bras.

(5) Maternal anxiety. This will decrease milk production.

(a) An infant reacting to maternal anxiety will usually act in one of two ways.

1 He will suck, stop, cry, suck, stop, cry, and then may regurgitate.

2 He will suck, stop, cry, refuse to nurse, and continue to cry.

(b) Teach the mother relaxation techniques. Tell her to feed her baby in a quiet area.

(6) Sore, cracked, or fissured nipples.

(a) Causes.

1 Infant not having the nipple and areola properly in the mouth.

2 "Friction" of the baby's gums on the nipple.

3 Infant being allowed to suck on an empty breast.

4 Washing the nipples with soap, which is drying.

5 Failure to break suction before removing the infant from the breast.

(b) Nursing interventions. Teach the mother proper nursing techniques and proper breast care.

(7) Breast infection.

(a) Most often caused by the causative organism, Staphylococcus areus.

(b) Entry is gained through a cracked or fissured nipple.

(c) The infection is usually interstitial and not intraductal, so the infection will not harm the baby.

(d) Nursing interventions. Instruct the mother on proper breast care. If breast soreness is present, have the mother to express milk into a bottle to feed to her baby.

9-6. BUBBLING THE NEWBORN

a. Methods used to bubble the baby are baby placed on shoulders, baby held upright leaning slightly forward, and baby held across the lap (see figure 9-9). Rub or gently pat his back until air is expelled.

b. When no belch follows feeding, position the baby on his right side or abdomen.

NOTE: Hiccupping is common.

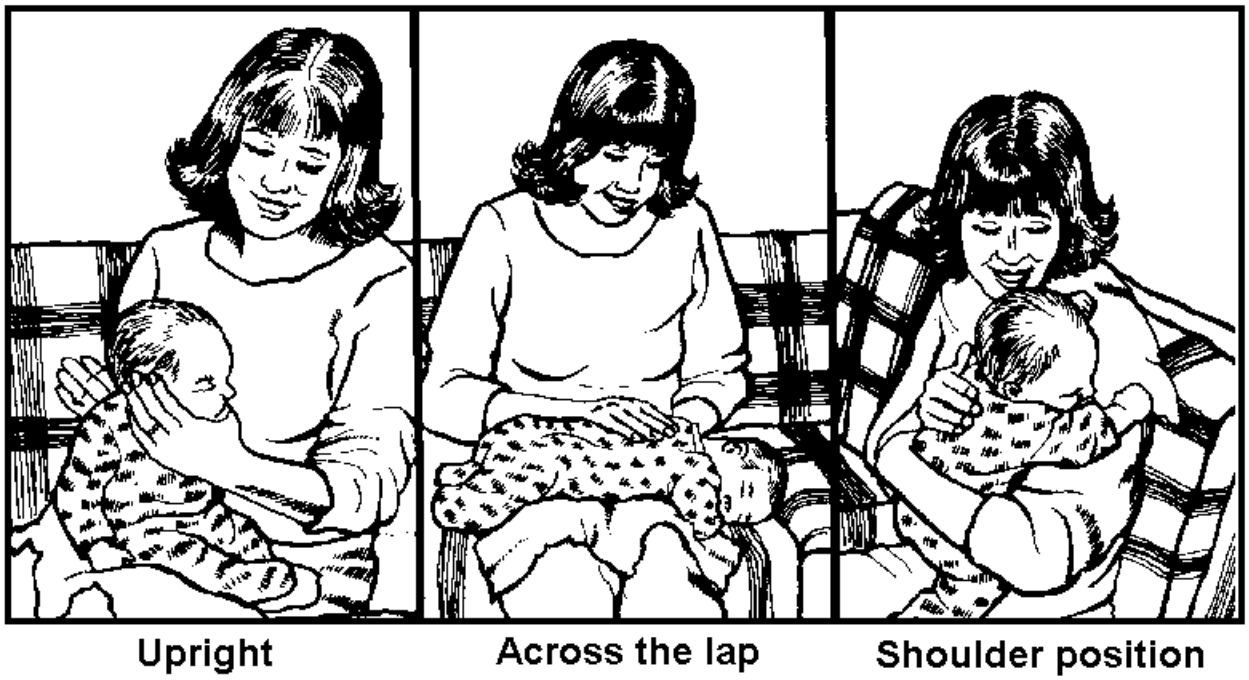


Figure 9-8. Bubbling baby.

c. The baby should be bubbled frequently.

(1) Bottle-feeding-every 1/2 ounce initially.

(2) Breast-feeding-between each breast.

d. Always be sure to support the head.

9-7. EVALUATING NUTRITIONAL STATUS

a. Observe.

(1) Behavior (crying, content, short sleeper).

(2) Measure either fluid intake from bottle fed newborn or number of minutes at each breast.

(3) Watch for signs of dehydration.

(4) Daily weights (evaluate increases and decreases).

(5) Elimination pattern.

(a) Dark, concentrated urine means too little fluid intake.

(b) Hard stools mean too little fluid intake.

(c) Frequency of stools or urine.

(6) Low-grade temperatures and/or increasing, weak pulses.

b. Determine impact of your observations over a 24-hour period rather than at each feeding.

9-8. WEIGHT CHANGES

a. All babies lose weight directly after birth, which should cause no concern unless the weight loss approaches 10 percent of the birth weight.

b. Within a week a newborn should regain his birth weight.

c. A gain of about an ounce a day is average.

d. At the end of 5 months, most babies have doubled their birth weight.

9-9. FIRST ORAL FEEDING AND RECORDING PROCEDURES BY THE NURSE

a. Review the mother's health record to verify the order.

b. Wash your hands.

c. Assemble the necessary equipment (sterile water in bottle, nipple and cap combination, tissue or cloth, and gown (if necessary)).

d. Wash your hands.

e. Put on clean gown (if not already in scrubs).

f. Approach and identify the newborn.

g. Invert the bottle and shake some water on your wrist.

(1) Test the patency of the nipple hole.

(2) Ensure that the water drips freely, but not in a stream. If the hole is too large, the newborn may aspirate water. If the hole is too small, the newborn may tire before the end of feeding.

h. Sit comfortable and cradle the newborn in a semi-reclining position in one arm. The infant's head and back are easily supported. Air is allowed to rise to the top of the infant's stomach where it is more easily expelled.

i. Place the nipple in the newborn's mouth. Do not insert if far enough to stimulate a gag reflex. The newborn should begin to suck. If he doesn't, stroke him under the chin or on the side of his cheek, or touch his lips with the nipple to stimulate a sucking reflex.

j. Tilt the bottle upward as the newborn feeds. Keep the nipple filled with water. This prevents him from swallowing air. Watch for a steady stream of bubbles in the bottle. This indicates proper venting and flow of water.

k. Reinsert the nipple if the newborn pushes the nipple out with his tongue. This is a normal reflex. It does not necessarily mean that he is finished eating.

l. Burp (bubble) the newborn after each 1/2 ounces of water. Some air will be swallowed by the newborn even when fed correctly. Positions to bubble the newborn are:

(1) Hold the newborn upright in a slightly forward position. Use one hand to support his head and cheek. Rub or gently pat his back until air is expelled.

(2) Hold the newborn upright over your shoulder or place him face down across your lap. A change in position helps bring up the bubble. Rub or gently pat his back until air is expelled.

m. Place the newborn on his stomach or right side. This prevents aspiration if he regurgitates.

n. Discard any remaining formula and properly dispose of all equipment.

o. Record the procedures and significant nursing observations in the patient's health record. Give the same report to the Charge Nurse. This will include:

(1) Time of feeding.

(2) Amount taken.

(3) How well the newborn fed.

(4) Did neonate appear satisfied.

(5) Occurrence of any regurgitation or vomiting.

9-10. **FORMULA PREPARATION INSTRUCTIONS TO THE MOTHER**

Reinforce instruction to the mother about formula preparation.

a. Identify the mother requiring reinforcement of teaching.

b. Review the mother's records to identify information previously given.

(1) Facts about formula preparation and storage.

(2) Facts about feeding equipment.

c. Formula preparation and storage.

(1) Commercially prepared formulas should be stored in cool places until opened. Once opened, the formula should be refrigerated at temperature and times suggested by the manufacturer.

(a) Once formula (or powder) has been constituted with water, follow the manufacturer's suggestions for length of time constituted formula is good.

(b) Once the newborn starts to feed, constituted formula should be used within 30 minutes. If not discarded, formula serves as an excellent medium for bacterial growth.

(2) Formulas prepared in the home should be stored in the refrigerator after the initial cool-down period following sterilization.

(a) Bottles of formula that have been sterilized are considered "good" until opened.

(b) Once opened, these bottles should be used within 30 minutes time frame. The unused portion should be discarded and not saved for the next feeding.

(3) Ready-to-feed formulas should be stored in a cool place. Once opened, these feedings should be used within 30 minutes and not saved for subsequent feedings.

(4) Dilution of formulas is of extreme importance. Improper dilution may cause problems such as diarrhea (if too concentrated) and weight loss (if too dilute).

d. Feeding equipment.

(1) Bottles.

(a) May be sterilized at home.

(b) May be cleansed by meticulous washing with warm, sudsy water and rinsing in hot water, and then air-dried.

(c) Plastic bottle inserts may be used but should be discarded after each use. The folds of plastic around the junction of the bottle's neck and the nipple provide a good source of growth medium.

(d) Ready-to-feed bottles pre-filled with formula may be purchased but are quite expensive.

(2) Nipples may be meticulously cleansed at home or may be purchased as a nipple-cap combination.

e. Clarify the mother's understanding of initial instructions.

(1) Provide information to correct any misunderstanding.

(2) Refer any questions you cannot answer to the Charge Nurse.

f. Provide additional instruction, as necessary, to the mother.

g. Determine the mother's understanding by questioning key points.

h. Report and record the mother's instruction appropriately.

Continue with Exercises

EXERCISES, LESSON 9

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. What problem may occur if the infant is fed water as a replacement for milk?

   _____

2. What makes the newborn vulnerable to dietary inadequacies and iron deficiency anemia?

   _____

3. What are the two basic minerals that are of particular importance in maintaining adequate nutrition in the newborn?

   _____ and _____

4. List the three types of formulas

   _____

   _____

   _____

   _____

5. Air bubbles going up into the bottle during feeding indicates:

   _____

6. In preparation of breast feeding, the mother should:

_____

_____

_____

For items 7 through 21. The following statements/phrases may be true or false. Indicate the correct answer by circling the "**T**" for true and "**F**" for false.

7. Clostrum contains less fat and sugar and more salts and protein than breast milk. T F

8. Delayed milk product is a common problem of breast-feeding. T F

9. Engorgement occurs on the first postpartum day. T F

10. Improper dilution of formulas may cause diarrhea and weight loss. T F

11. Ready-to-feed formulas should be stored in a warm area. T F

12. Additional fluids are required for infants with vomiting, fever, and diarrhea. T F

13. Calcium is an essential element needed for synthesis of hemoglobin and cell metabolism. T F

14. Newborns do not require vitamin and mineral supplements. T F

15. Feeding the infant should take place in a comfortable setting. T F

16. The bottle should be tilted to keep the nipple filled with milk/formula at all times. T F

17. Protein is more digestible than cow's milk. T F

18. Mothers with cardiac or established renal diseases may be discouraged from nursing. T F

19. Engorgement cannot be prevented by manual expression of milk from the breast. T F

20. When breast feeding, the infant should be bubbled between each breast. T F

21. An infant's hard stools indicate too little fluid intake. T F

Check Your Answers on Next Page

SOLUTIONS, LESSON 9

1. Water intoxication. (para 9-2a(2))

2. Infant's rapid growth. (para 9-2b(1))

3. Calcium and iron. (para 9-2b(1))

4. Ready-to-feed, Concentrate, and Powder. (para 9-4b)

5. Infant is getting formula. (para 9-4d(7))

6. Roll her nipples with her thumb and forefinger two to three times daily.
   Massage her breast.
   Roughen her nipples with a towel. (para 9-5a)

7. T (para 9-5b(2))

8. T (para 9-5d(1))

9. F (para 9-5d(3))

10. T (para 9-10c(4))

11. F (para 9-10c(3))

12. T (para 9-2a)

13. (para 9-2b(1)(b))

14. F (para 9-2b(2))

15. T (para 9-4d(2))

16. T (para 9-4d(5))

17. T (para 9-5b(3))

18. T (para 9-5c(6))

19. F (para 9-5d(3)(a))

20. T (para 9-6d(2))

21. (para 9-7a(5)(b))

End of Lesson 9

LESSON ASSIGNMENT

LESSON 10 The Premature Infant.

TEXT ASSIGNMENT Paragraphs 10-1 through 10-8.

LESSON OBJECTIVES After completing this lesson, you should be able to:

10-1. Identify terms, definitions, and criteria that relates to the premature infant.

10-2. Select the eleven causes for prematurity.

10-3. Select those nursing measures and reasons for the premature infant needing assistance with his respiratory status.

10-4. Select those nursing measures and reasons for caring for the premature infant having difficulty maintaining his body temperature.

10-5. Identify those measures used when caring for an infant needing help with maintaining adequate nutrition.

10-6. Identify those measures used to prevent infections in the premature infant.

10-7. Identify those illnesses to which a premature infant is most susceptible.

10-8. Select those factors that may place a premature infant at risk for failure to thrive (FTT).

SUGGESTION After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 10

THE PREMATURE INFANT

10-1. GENERAL

The premature infant's mortality risk is far greater than that of the term infant. It accounts for over fifty percent of deaths among neonates. A large percentage of all premature infants can survive if they receive comprehensive medical management, including specialized nursing care. The adjustment to extrauterine life presents an added hazard to the premie because he leaves the protection of the uterus before his physical development is sufficient. He comes into the extrauterine world with physiological limitations that could set the stage for both early and later complications. These limitations or handicaps differ in kind, number, and severity, depending on gestational age at birth. The smaller the infant, the more arduous his struggle is expected to be. Each premature infant provides the nursery personnel with a unique challenge. His specific physical needs are met most successfully when the nurse recognized the intensity of care required and applies expert nursing skills geared to assist with his struggle.

10-2. DEFINITION AND CRITERIA

The premature (preterm) infant is one born before the end of the thirty-seventh week of gestation. Additional criteria used to more objectively define prematurity are neurological development data, skin and joint characteristics, size, and any predominant pathophysiologic conditions.

10-3. CAUSES OF PREMATURITY

In most instances the causes of prematurity are not known. However, the following conditions are considered:

a. Poor diet.

b. Poor health.

c. Cervical incompetence.

d. Multiple pregnancies/births.

e. Advanced age of parents.

f. Trauma.

g. Toxemia.

h. Congenital malformations of the fetus.

i. Chronic infection or disease of the mother (i.e., syphilis, tuberculosis, cardiac disease, and diabetes).

j. Acute infection of the mother (that is, pneumonia and rheumatic fever).

10-4. INITIATION AND MAINTENANCE OF RESPIRATION IN THE PREMATURE INFANT

Initiation and maintenance of respiration in the premature infant is of primary concern. The lung maturity varies in accordance with the degree of prematurity, drugs given before hand, and/or prolonged stress before delivery. The alveoli began to form at twenty six to twenty eight weeks gestation. The longer the delivery of the baby can be delayed, the greater will be the ability of the lungs to sustain extrauterine life.

a. At the moment of delivery, the newborn must switch from passive reception of oxygen to establishing and maintaining ventilation by untried lungs. Not infrequently, the premature infant is incapable of this task, making resuscitation necessary. The respiratory muscles are poorly developed, the chest wall lacks stability, and production of surfactant is reduced. Effective resuscitation must be established to prevent the development of irreversible respiratory acidosis.

b. The infant should be positioned to allow for easy drainage of mucus from his mouth. Very small infants are placed on their side, whereas, large infants are placed on their abdomen. The infant's head may be tilted down except when danger of increased intracranial pressure or increased respiratory distress, which is due to his liver pressing on the diaphragm.

c. The best way to evaluate the baby's oxygen status is through arterial blood gases. Caution must be applied during the administration of 100% oxygen during resuscitation or to maintain respirations because it places the immature infant in danger of developing pulmonary edema or retrolental fibroplasia.

d. The infant needs continuous monitoring/assessment for:

(1) Respiratory rate, depth, and regularity.

(2) Periods of apnea greater than 20 seconds.

(3) Respiratory rate after apneic episode (same, increased, or decreased).

(4) See-saw respirations.

(5) Expiratory grunting.

(6) Chin tug.

(7) Retractions.

(8) Nasal flaring.

(9) Cry (feeble, whining, and high-pitched).

(10) Heart rate (usually increased).

(11) Cyanosis (when it occurs, where, relieved by O_2, and amount of O_2 needed).

(12) Reflexes (gag and swallow).

(13) Prebirth history.

10-5. MAINTENANCE OF BODY TEMPERATURE IN THE PREMATURE INFANT

The lack of subcutaneous fat and poor muscular development make the premature infant more susceptible to loss of body heat. The absent or minimal flexion of extremities prevents the premature infant from self-positioning to decrease the amount of body surface requiring heat. In the absent or poor reflex control of skin capillaries, there is no shivering to produce heat. Immediately after delivery the baby should be placed under a radiant heat warmer. He must never be without provisions of external warmth at any time. It is good practice to keep the baby's head covered because of the large amount of heat that is lost through the head. The body temperature of the infant should be maintained at 98^{o} F axillary.

10-6. MAINTENANCE OF ADEQUATE NUTRITION IN THE PREMATURE INFANT

a. The growth rate of the premature infant should parallel the expected intrauterine growth rate. Most immature neonates have feeble, absent or unsynchronized sucking and swallowing reflexes. A great deal of patience is needed when feeding them. A specially made nipple for premature infants may need to be used.

b. Maintenance of fluid balance also poses a problem. A high proportion of fluid is excreted from the baby through the urine because the baby is unable to efficiently concentrate urine. Intravenous fluid is usually initiated within the immediate hours following birth. Intravenous. glucose is provided to prevent development of hypoglycemia.

c. The premature infant has a small gastric capacity but a high caloric requirement. Adequate nutritional support may be achieved by providing frequent feedings of small amounts using a high calorie formula.

d. The premature infant regurgitates feedings easily because of the poor muscle tone at the cardiac sphincter. They can only eat small amounts at each feeding. Their heads should be elevated after eating.

e. In addition to high calorie content, the formula is often supplemented with calcium, phosphorous, electrolytes (that is, sodium, potassium, and chloride), and vitamins.

f. When breast milk is required, the mother can pump her breast and the milk can be fed to the baby at a later time.

g. Inappropriate weight gain of the premature infant in relation to caloric intake can indicate problems. Usually large weight gain may indicate excessive fluid retention. No weight gain or a loss may indicate acidosis, sepsis, or malabsorption.

h. The premature infant should be allowed to rest between feedings. The infant tires easily from procedures and will eat better if rested. Each feedings should not last longer than 15 minutes.

i. Gavage feeding (see figure 10-1) may be required until the preterm infant is strong enough for the gradual introduction of bottle or breast-feeding. Before each feeding, stomach secretions are usually aspirated, measured, and the amount/characteristics are documented. If the infant has more than 2 ml of secretions in the stomach prior to feeding, he is probably receiving more formula than can be digested between feedings.

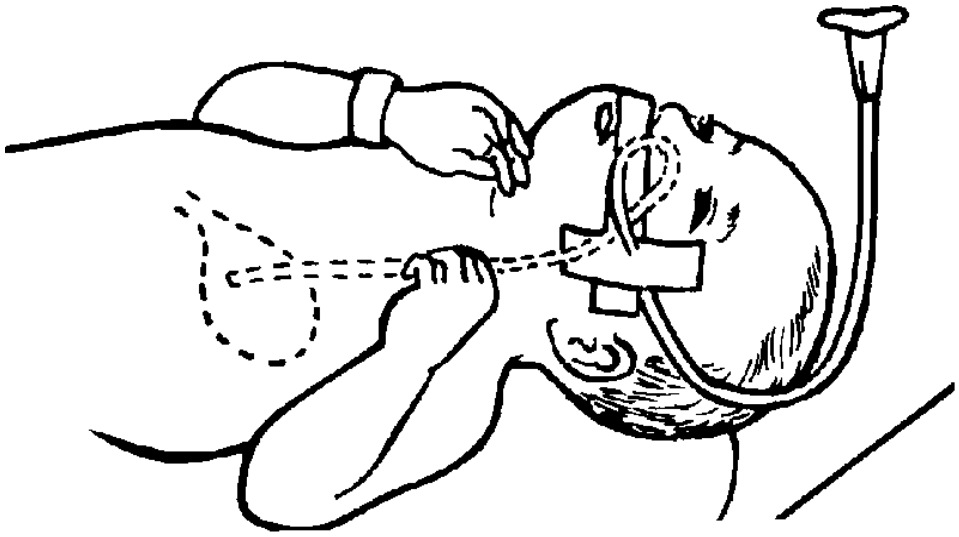


Figure 10-1. Gavage feeding.

j. When the immature newborn is given intravenous feedings, the fluid should be controlled by a continuous infusion pump to ensure a constant rate and to prevent over feeding. The infant must be carefully observed for the development of hyperglycemia because of the increased amounts of glucose administered. Urine checks are made and the frequency, glucose, detones, and specific gravity are recorded.

10-7. PREVENTION OF INFECTION IN THE PREMATURE INFANT

The infant is very vulnerable to infection because the skin is immature and easily traumatized, thus weakening the defense against pathogens. The baby also has a lower resistance to infection because of a white blood cell count that is lower than the term infant. Protective measures include:

a. A restriction on all staff who have an infection.

b. Meticulous handwashing.

c. Gowning regulations.

d. Separate premature nursery.

e. Contact with only essential authorized personnel

f. Cleanliness of immediate environment.

10-8. ILLNESS OF THE PREMATURE INFANT

a. The premature infant is especially susceptible to some major illnesses.

(1) Respiratory distress syndrome/Hyaline membrane disease.

(2) Bronchopulmonary dysplasia - emphysematous changes which occur as a result of O_2 toxicity.

(3) Pulmonary dysmaturity.

(4) Retrolental fibroplasia.

(5) Hypoglycemia.

(6) Sepsis.

(7) Anemia.

b. There may be risk for failure to thrive as the baby grows older because of early:

(1) Feeding problems.

(2) Infection.

(3) Hemorrhage.

(4) Jaundice.

(5) Delayed mother/infant bonding.

Continue with Exercises

EXERCISES, LESSON 10

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. An infant is considered premature if he is born before the_____ week of gestation.

2. To allow for easy drainage of mucus from a premature infant, very small infants are placed on their _____ and large infants are placed on their _____.

3. No weight gained or a loss of weight for a premature infant may indicate:

   _____, _____, and _____

4. What conditions are considered causes of prematurity?

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

5. What is the best way to evaluate an infant's oxygen status?

_____

6. What protective methods are provided for the prevention of infection in the premature infant.

_____

_____

_____

_____

_____

_____

7. What major illness is susceptible to the premature infant?

_____

_____

_____

_____

_____

_____

_____

8. List seven of the thirteen factors that require continuous monitoring/assessment for the premature infant.

_____

_____

_____

_____

_____

_____

_____

9. The premature infant regurgitates feeding easily because of the infant's:

   a. Small mouth.

   b. Thick tongue.

   c. Small gastric capacity.

   d. Poor muscle tone at the cardiac sphincter.

10. Failure of the premature infant to thrive as he grows older can be related to early:

   a. Infections.

   b. Feedings.

   c. Surgery.

   d. Method of birth.

Check Your Answers on Next Page

SOLUTIONS, LESSON 10

1. 37th week. (para 10-2)

2. Side.
   Abdomen. (para 10-4b)

3. Acidosis.
   Sepsis.
   Malabsorption. (para 10-6g)

4. Poor diet.
   Poor health.
   Cervical incompetence.
   Multiple pregnancies/births.
   Advanced age of parents.
   Trauma.
   Toxemia.
   Congenital malformations of the fetus.
   Chronic infection or disease of the mother.
   Acute infection of the mother. (para 10-3)

5. Through arterial blood gases. (para 10-4c)

6. Restriction on all staff who have an infection.
   Meticulous handwashing.
   Gowning regulations.
   Separate premature nursery.
   Contact with only essential authorized personnel.
   Cleanliness of immediate environment. (para 10-7a-f)

7. Respiratory distress syndrome.
   Bronchopulmonary dysplasia.
   Pulmonary dysmaturity.
   Retrolental fibroplasia.
   Hypoglycemia.
   Sepsis.
   Anemia. (para 10-8a)

8. Any seven of the thirteen.

   Respiratory rate, depth, and regularity.
   Periods of apnea greater than 20 seconds.
   Respiratory rate after apneic episode.
   See-saw respirations.
   Expiratory grunting.
   Chin tug.
   Retractions.
   Nasal flaring.
   Cry.
   Heart rate.
   Cyanosis. (para 10-4d)

9. d (para 10-6d)

10. a (para-8b(2))

End of Lesson 10

LESSON ASSIGNMENT

LESSON 11 The Sick Neonate.

TEXT ASSIGNMENT Paragraphs 11-1 through 11-12.

LESSON OBJECTIVES After completing this lesson, you should be able to:

11-1. Select those statements that describe each of the twelve problems of the neonate:

- Weight-related gestational conditions.
- Age-related gestational conditions.
- Jaundice.
- Intracranial hemorrhage.
- Tracheoesophageal atresia.
- Down's syndrome.
- Clubfoot.
- Erythroblastosis fetalis.
- Respiratory distress syndrome.
- Children born of an addict mother.
- Infants suffering from Fetal Alcohol Syndrome (FAS).

11-2. Identify signs and symptoms of the twelve problems of the neonate.

11-3. Identify the treatments for the twelve problems of the neonate.

11-4. Identify the nursing care considerations for the twelve problems of the neonate.

SUGGESTION After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 11

THE SICK NEONATE

11-1. GENERAL

The neonate at birth represents the culmination of genetic, antepartal, and intrapartal factors that affect its immediate and future well-being. Many neonates, when born, have already been introduced to in utero insults and birth trauma, which severely jeopardized their future welfare. Their survival, and perhaps their quality of life, is entrusted to the knowledge, skill, and expertise of the health care team. The practical nurse performs a vital role in caring for the sick neonate. Constant attention must be directed to the accurate observation of the neonate so that significant changes may be reported immediately. This lesson will consist of twelve problems of the neonate.

11-2. WEIGHT-RELATED GESTATIONAL CONDITIONS

a. **Small for Gestational Age Infant (SGA)**. The birth weight of a small for gestational age infant (SGA) infants fall below the tenth percentile for this given gestational age. These neonates may be preterm, full-term, or post term. However, the defining characteristic specifies that they are small for their designated gestational age (see figure 11-1).

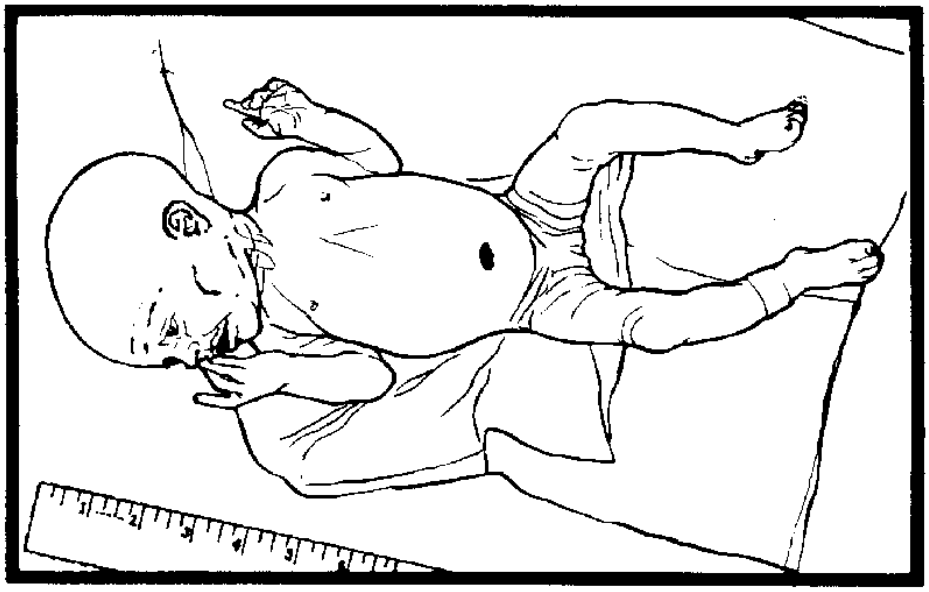


Figure 11-1. Small for gestational age infant.

(1) Characteristics of the SGA infant are as follows:

(a) The infant appears thin and wasted; their skin is loose and dry.

(b) There is little subcutaneous fat; their face appears shrunken and wrinkled.

(c) The length and head size may be normal but the head looks really big in comparison to the rest of the body.

(2) The underlying cause of SGA infants is an interruption in the normal pattern of in utero growth of the fetal, placental, or of maternal origin. Factors considered are:

(a) Chromosomal abnormalities.

(b) Smoking.

(c) Alcohol consumption/narcotic abusers.

(d) Preeclamptic/eclamptic.

(e) Inadequate prenatal care.

(3) The following conditions occur more frequently in the SGA:

(a) Asphyxia. This tolerates labor poorly which is due to the decreased of metabolic stores of carbohydrates. The SGA is often resuscitated at birth.

(b) Meconium aspiration. The fetus grasps amniotic fluid containing meconium, or it occurs when the neonate takes his first breath. It may cause atelectasis, pneumothorax, or pneumonitis.

(c) Hypoglycemia. This is most likely to occur from 12 to 48 hours after birth but may also be noted within 6 hours if the infant is severely hypoxic. It may lead to neurological damage.

(d) Hypothermia. This is due to lack of subcutaneous fat.

(e) Polycythemia. This is frequently seen when SGA is due to placental insufficiency.

(f) Congenital anomalies. The genitourinary and cardiovascular systems are most common problem area.

NOTE: Congenital anomalies are defects or disorders present in the infant when born.

(4) Nursing care considerations.

(a) Monitor blood sugars according to local policy.

(b) Observe for signs of respiratory distress (grunting, flaring, retractions, apnea, and cyanosis).

(c) Monitor input and output (I&O), daily weights, and head circumference.

(d) Prevent hypothermia by maintaining thermal stability.

(e) Assess hematocrit according to local policy.

(f) Support the parents by listening to their concerns and answering questions.

b. **Large for Gestational Age**. Large for gestational age (LGA) infants are those whose birth weight places them above the 90th percentile of normal for their gestational age.

(1) Conditions that occur frequently in the LGA infant are:

(a) Hypoglycemia. This is related to hyperinsulinism following birth.

(b) Hypocalcemia. This is associated with prematurity or asphyxia.

(c) Polycythemia. This is a complicated factor of decreased extracellular fluid.

(d) Hyperbilirubinemia. This may be influenced by decreased extracellular fluid and birth trauma hemorrhage.

(e) Respiratory distress syndrome. This is associated with premature delivery.

(f) Congenital anomalies.

(2) Nursing care considerations.

(a) Monitor the infant's respiratory and temperature status.

(b) Monitor the infant's levels of glucose, calcium, bilirubin, and hematocrit and hemoglobin per physician's orders.

(c) Employ measures to prevent infection.

11-3. AGE-RELATED GESTATIONAL CONDITIONS

a. **Premature Infant**. The infant's abdomen is relatively large, his thorax is relatively small, and his head is disproportionately large. He has poor muscle tone, but his reflexes work.

b. **Postmature Infant**. The postmature infant (see figure 11-2) gestation is 42 weeks or longer. He may show signs of weight loss from placental insufficiency and in many cases the cause is not known.

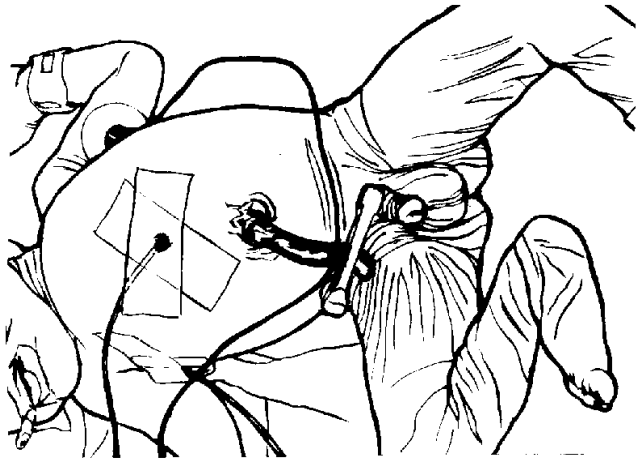


Figure 11-2. Postmature infant.

(1) Characteristics displayed by the postmature infant are contingent upon placental functioning and related placental insufficiency.

(a) The infant's skin appears pale, cracked, very dry, peeling, and wrinkled with a noticeable absence of vernix. The skin also appears dehydrated and has little subcutaneous fat, which accounts for the loose skin, especially in the buttocks and thighs.

(b) The infant's fingernails and hair are long. There is no appearance of lanugo.

(c) The infant's measurements are in proportion.

(d) There is meconium staining of amniotic fluid, fingernails and umbilical cord and even the skin.

(e) The infant has an alert appearance of a two to three weeks old infant following delivery.

(f) With a more severe degree of placental insufficiency, there may be asphyxia, hypoglycemia/hypocalcemia, and meconium aspiration.

(g) Other complications include pulmonary hemorrhage, pneumonia, and pneumothorax.

(2) Nursing care considerations.

(a) Observe for respiratory distress.

(b) Monitor I&O.

(c) Provide stable thermoregulation. Keep the infant warm and away from drafts.

(d) Support the parents by listening and answering questions.

11-4. JAUNDICE (HYPERBILIRUBINEMIA)

Jaundice is a marked accumulation of serum bilirubin levels.

a. **Classifications**.

(1) Physiologic. Jaundice occurs after 24 hours past delivery and generally disappears seven to ten days after delivery. It is caused by the inability of the infant's immature liver to modify bilirubin so it can be excreted from the body.

(2) Pathologic. Jaundice occurs before the baby is 24 hours of age and persists beyond seven days. It may be caused by Rh or ABO incompatibility sepsis, excessive bruising, or metabolic disorders.

b. **Signs and Symptoms**.

(1) Appearance. Jaundice is a yellowish appearance in the skin, sclera of the eye, or oral mucosa. The onset of jaundice is usually on the face with advancement to the trunk and extremities. Blanching the skin on a bony prominence allows for easy assessment.

NOTE: The blanch test refers to applying pressure with the thumb over a bony area for several seconds to empty all capillaries in that spot. The blanched area will look yellow before the capillaries of jaundice is present.

(2) Lethargy.

(3) Poor feeding.

(4) Dark stools.

(5) High-pitched cry and diminished or absent moro and sucking reflex - with ensuing neurologic damage.

(6) Hyperirritability, hypertonia, seizures, and opisthotonos (tetanic spasm resulting in an arched hyperextended position of the body-with advanced neurological damage).

(7) Cerebral palsy, seizure disorders, deafness, and death - with permanent neurological damage.

c. **Complications**.

(1) Kernicterus-a yellowish discoloration of specific areas to brain tissues by unconjugated bilirubin. This accumulation of bilirubin rises to toxic levels and is deposited in the brain causing brain damage.

(2) Nephrotoxic bilirubin-this refers to the bilirubin level in the blood being toxic and is, therefore, destructive to kidney cells.

(3) Hearing loss.

d. **Treatment/Nursing Care**.

(1) Early feedings. This is important to stimulated digestive processes in the intestines which are necessary to establish bacterial flora and to decrease enterohepatic circulation of bilirubin.

(2) Phototherapy. This allows for the utilization of alternate pathways for bilirubin excretion. Lights break down the pigment in the skin so that it can be excreted. The nurse must:

(a) Monitor the infant's temperature.

(b) Apply meticulous eye care. Ensure patches are in place over the infant's eyes.

(c) Monitor I&O, skin turgor, daily weights, and skin breakdown.

(3) Albumin. This method transports bilirubin to the liver for modification. Albumin-bound bilirubin is not able to penetrate the blood-brain barrier, which aids in the prevention of kernicterus.

(4) Exchange transfusion. This is the most direct method of eliminating bilirubin. Transfusion is generally reserved for more severe cases secondary to complications. The goal is to exchange the neonate's blood with fresh donor blood.

(5) Observance.

(a) For appearance of an increase in jaundice.

(b) For changes in urination frequency or pigmentation.

(c) For behavioral changes.

11-5. INTRACRANIAL HEMORRHAGE

a. Intracranial hemorrhage is caused by trauma or anorexia in utero or at the time of birth. It most frequently occurs in preterm neonates but may also be found in full-term babies. Difficult and very rapid deliveries are often associated with intracranial hemorrhage.

b. Symptoms depend on the areas of hemorrhage and the amount and extent of the hemorrhage. It may be subtle or pronounced, occur at birth, or within several days following birth.

(1) Low APGAR scores.

(2) Irregular respirations.

(3) Cold, pale, and clammy skin.

(4) Bulging or tense fontanels.

(5) Unequal pupils.

(6) Diminishing moro reflex.

(7) Opisthotonos.

(8) Seizures.

c. Medical and nursing interventions.

(1) Keep the infant in a quiet environment.

(2) Avoid stressful or stimulating procedures.

(3) Monitor respiratory functions and temperature instability.

(4) Feed as tolerated.

(5) Administer sedatives and/or vitamin K as ordered.

d. Prognosis depends on the severity of the hemorrhage and the precipitating factors. Some neonates demonstrate mild symptoms with few effects while others may progress to seizuring and death. Survival after a severe case increases the risk of permanent cerebral damage, hydrocephalus, mental and neurologic impairment, and cerebral palsy. And in addition, hydrocephalus may be present. This is excessive accumulation of cerebrospinal fluid (CSF) within the ventricular spaces of the brain-causing enlargement of the head.

11-6. TRACHEOESOPHAGEAL FISTULA AND ESOPHAGEAL ATRESIA

a. Tracheoesophageal fistula is a developmental anomaly characterized by an abnormal connection between the trachea and the esophagus and usually accompanies esophageal atresia (see figure 11-3). Esophageal atresia is failure of the esophagus to form a continuous passage from the pharynx to the stomach. There are some cases of Tracheoesophageal fistula without esophageal atresia.

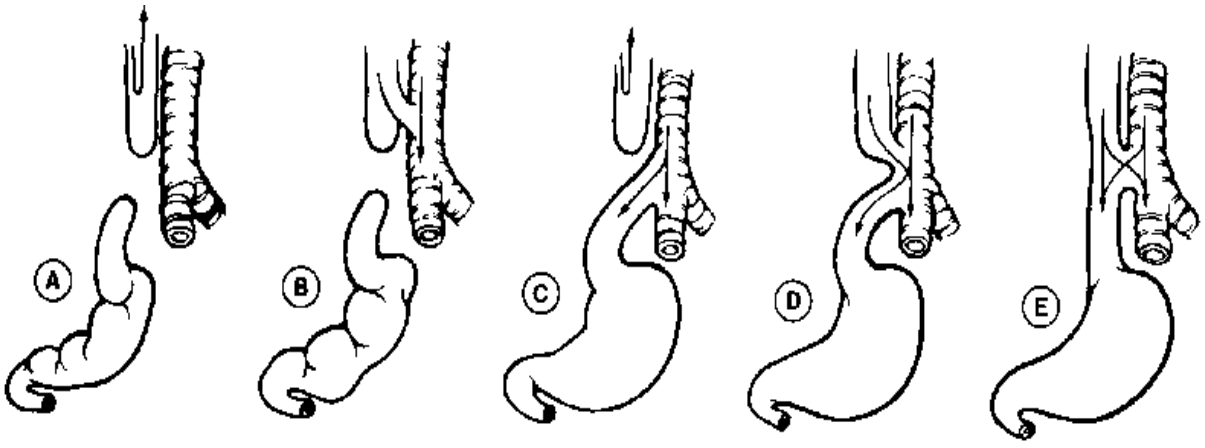


Figure 11-3. Tracheoesophageal fistula and esophageal atresia.

b. Signs and symptoms vary according to location of fistula and atresia.

(1) The infant appears to swallow normally but soon after coughs, struggles, become cyanotic, and stops breathing.

(2) Stomach distention may cause respiratory distress.

(3) Air and gastric contents may reflux through the fistula into the trachea resulting in chemical pneumonitis.

(4) If there is esophageal atresia without a fistula, as secretions fill the esophageal sac and overflow into the oropharynx, the infant develops mucus in the oropharynx and drools excessively.

(5) Repeated episodes of pneumonitis, pulmonary infection and abdominal distention may be present.

c. Diagnosis.

(1) Catheter passed through the nose meets an obstruction.

(2) Chest x-ray.

(3) Abdominal x-ray.

(4) Cinefluorography.

d. Treatment.

(1) Tracheoesophageal fistula and esophageal atresia requires surgical correction and are usually considered a surgical emergency.

(2) The type of surgical procedure and when it is performed depends on the nature of the anomaly, the patient's general condition, and the presence of coexisting congenital defects.

e. Postoperative complications.

(1) Tracheoesophageal fistula.

(a) Recurrent fistulas.

(b) Esophageal mobility dysfunction.

(c) Esophageal stricture.

(d) Recurrent bronchitis.

(e) Pneumothorax.

(f) Failure to thrive.

(2) Esophageal atresia.

(a) Impaired esophageal motility.

(b) Hiatal hernia.

(c) Reflux esophagitis.

f. Nursing interventions.

(1) Monitor respiratory status.

(b) Perform pulmonary physiotherapy.

(c) Suction as necessary.

(2) Administer antibiotics and parenteral fluids as ordered.

(3) Accurate I&O.

(4) Observe for signs of complications (that is, pneumothorax).

(5) Maintain gastrostomy tube feedings.

(6) Give the baby a pacifier to satisfy his sucking needs but only when he can safely handle secretions.

(7) Offer the parents support and guidance and encourage bonding.

(8) Positioning before and after surgery varies with the doctor's philosophy and the child's anatomy.

(a) Supine with his head low to facilitate drainage.

(b) Head elevated to prevent aspiration.

11-7. DOWN'S SYNDROME

a. Down's syndrome is referred to as a chromosomal abnormality involving an extra chromosome (number 21). It is characterized by a typical physical appearance and mental retardation. The extra chromosome is known as trisomy 21, an aberration in which chromosome 21 has three copies instead of the normal two because of faulty meiosis of the ovum or the sperm. It may be inherited or not inherited. Overall, it occurs in 1 per 650 live births. The incidence increases with maternal age, especially after age 35. Women over 35 years old account for bearing 50 percent of all children with Down's syndrome. Paternal age doesn't seem to play a significant part. This suggests that sometimes the chromosome abnormality responsible for Down's syndrome results from deterioration of the oocyte because of age alone or because of the accumulated effects of environmental factors.

b. Signs and symptoms. See figure 11-4 for a typical Down's syndrome child.

(1) Mental retardation is obvious as infants grow older.

(2) Marked hypotonia and floppiness.

(3) Joint hyperextension or hyperflexibility.

(4) Tendency to keep mouth open with his tongue protruding, high arched palate, and furrowed tongue.

(5) Eyes slant upwards and outward with internal epicanthal folds.

(6) Flattened nasal bridge and flat facial profile.

(7) Small ears, often incompletely developed, low set.

(8) Single transverse palmar crease-simian crease.

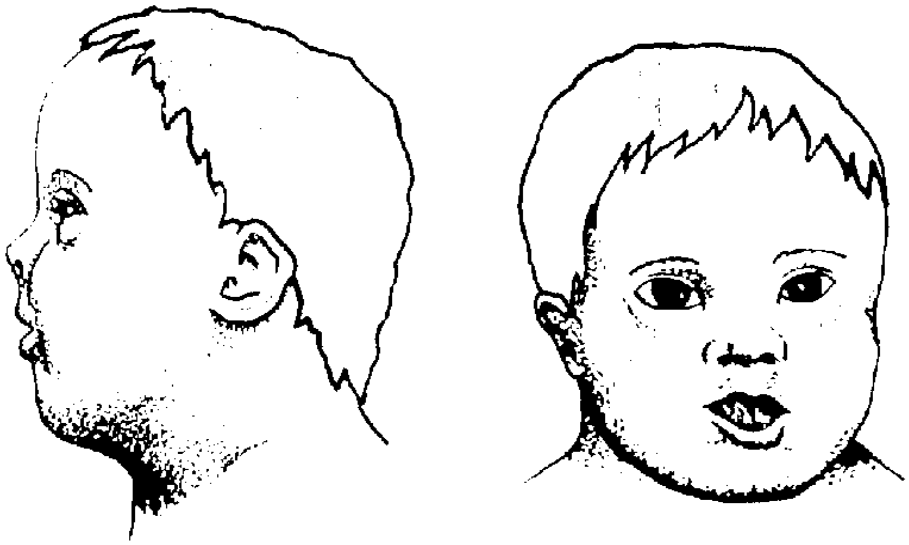


Figure 11-4. Clinical features of Down's syndrome.

c. Diagnosis.

(1) Physical findings at birth.

(2) Karyotype (chromosomal analysis). This will show how the third chromosome, number 21, is attached to another autosome in terms of location or nondisjunction.

(3) Amniocentesis.

d. Treatment. There is no known cure for Down's syndrome. Surgery is available to correct heart defects and other congenital abnormalities. Antibiotic therapy for recurrent infections is also available.

e. Nursing intervention.

(1) Be careful and alert to infant's feedings. Due to poor muscle tone and his protruding tongue, the infant may be a poor eater.

(2) Observe for complications that may occur with Down's syndrome.

(a) Abdominal distention and vomiting.

(b) Irregularities in pulse of respiratory rate-cyanosis, tires easily with feeding.

(3) Support the infant and carefully position him.

(4) Provide proper stimulation to meet the infant's needs-positive and effective sensory stimulation.

(5) Encourage parental participation in the infant's care.

11-8. ERYTHROBLASTOSIS FETALIS

a. This is considered a hemolytic disease of the fetus and newborn, which stems from an incompatibility of fetal and maternal blood which results in maternal antibody activity against fetal red blood cells (RBCs). This disease usually is a result from Rh isoimmunization. During her first pregnancy, an Rh-negative female becomes sensitized by exposure to Rh-positive fetal blood antigens inherited from the father. A subsequent pregnancy with an Rh-positive fetus provokes increasing amounts of maternal agglutinating antibodies to cross the placental barrier, attach to Rh-positive cells in the fetus, and cause hemolysis and anemia. To compensate for this, the fetus steps up the production of RBCs, and erythroblasts appear in the fetal circulation. Extensive hemolysis results in the release of large amounts of unconjugated bilirubin, which the liver is unable to modify and excrete, causing hyperbilirubinemia and hemolytic anemia.

b. Signs and symptoms include:

(1) Jaundice - usually not present at birth but may appear as soon as 30 minutes later or within 24 hours after birth.

(2) Edema.

(3) Petechiae.

(4) Grunting respirations.

(5) Neurologic unresponsiveness.

(6) Bile-stained umbilical cord.

c. Treatment depends on the degree of maternal sensitization and the effects of hemolytic disease on the fetus or newborn.

(1) Intrauterine-intraperitoneal transfusion.

(a) This is performed when amniotic fluid analysis suggests the fetus is severely affected and delivery is inappropriate due to fetal immaturity.

(b) A transabdominal puncture into the fetal peritoneal cavity allows infusion of group O, Rh-negative blood.

(c) This may be repeated every two weeks until the fetus is mature enough for delivery.

(2) Exchange transfusion. This removes antibody-coated RBCs and prevents hyperbilirubinemia through removal of the infant's blood and replacement with fresh group O, Rh-negative blood.

(3) Albumin infusion. This aids in the binding of bilirubin, reducing the chances of hyperbilirubinemia.

d. Nursing interventions.

(1) Reassure parents, explain procedures, and allow them time to ventilate.

(2) Provide patient teaching.

(3) Maintain baby's temperature.

(4) Keep resuscitative equipment available.

(5) Watch for complications of transfusion.

(a) Muscular twitching.

(b) Convulsions.

(c) Dark urine.

11-9. RESPIRATORY DISTRESS SYNDROME (HYALINE MEMBRANE DISEASE)

Respiratory distress syndrome (RDS) is characterized by a progressive and frequently fatal respiratory disorder resulting from atelectasis and immaturity of the lungs.

a. **Incidence**. Respiratory distress syndrome occurs almost exclusive in infants born before the 37th week of gestation. It occurs more often in infants of diabetic mothers, those delivered by cesarean section, and those delivered suddenly after antepartum hemorrhage. This disease is the most common cause of neonatal mortality. In the US alone, it causes death of 40,000 newborns every year.

b. **Cause**. Although the airways and alveoli of an infant's respiratory system are present by the 27th week of gestation, the intercostal muscles are weak and the alveoli and capillary blood supply is immature. In RDS, the premature infant develops widespread alveolar collapse because of lack of surfactant.

c. **Signs and Symptoms**.

(1) May breathe normally at first.

(2) Rapid, shallow respirations, then prolonged apnea.

(3) Intercostal, subcostal, or sternal retractions.

(4) Nasal flaring.

(5) Audible expiratory grunting. A natural compensatory mechanism designed to produced positive end-expiratory pressure and prevent further alveolar collapse.

(6) Frothy sputum.

(7) Low body temperature.

NOTE: Early diagnosis is imperative so that treatment may begin immediately.

d. **Treatment**.

(1) Vigorous respiratory support.

(2) Warm, humidified, oxygen-enriched gases are administered by oxygen hood which is the treatment of choice.

(3) Mechanical ventilation.

(4) Radiant infant warmer or isolette.

(5) Sodium bicarbonate IV as necessary.

(6) Tube feedings or hyperalimentation.

e. **Nursing Intervention**.

(1) Monitor Arterial Blood Gases (ABGs).

(2) Monitor for infection, thrombosis, or decreased circulation to legs if the infant has an umbilical catheter.

(3) Take daily weights.

(4) Assess skin color.

(5) Monitor respiratory rate, depth, and character as well as other signs of distress.

(6) Provide parental teaching and emotional support; encourage bonding.

11-10. INFANT OF ADDICTED MOTHER

This refers to an infant who is born to a mother who is narcotic or methadone-dependent and who takes the drug or drugs in varying dosages for varying periods during her pregnancy.

a. **Etiology**. Drugs that the mother has taken during pregnancy crosses the placental barrier and enter the fetal circulation. Supply to the infant is abruptly terminated at delivery. Other agents (for example, phenobarbital and Darvon®) are capable of causing withdrawal symptoms).

b. **Degree of Withdrawl Symptoms**. The degree of withdrawal symptoms the infant manifests may be related to the duration of the mother's habit, the type and dosage requirements of her addiction, and her drug level immediately prior to delivery.

c. **Onset of Symptoms**. Heroin and methadone are the narcotic drugs most commonly involved in neonatal drug addition.

(1) Heroin addition is seen several hours after birth to three to four days of life.

(2) Methadone addition is seen seven to ten days after birth to several weeks of life.

d. **Signs of Withdrawal**.

(a) Coarse, flapping tremors.

(b) Prolonged, persistent, high-pitched cry.

(c) Vigorous, ineffective sucking, poor feeding.

(d) Excessive tearing and sweating.

(e) Sneezing, nasal stuffiness.

(f) Convulsions - with methadone withdrawal.

(g) Hyperpyrexia (an excessively high body temperature).

e. **Size**. High incidence of infants born to addicted mothers are premature and/or small for gestational age.

f. **Treatment**.

(1) Narcotic antagonist is used to counteract narcotic-induced respiratory depression.

(2) Drug therapy is used for alleviation of signs of narcotic withdrawal.

(3) Supportive therapy is given as appropriate.

g. **Nursing Care Considerations**.

(1) Be familiar with withdrawal symptoms to facilitate early diagnosis in order to decrease morbidity/mortality of high-risk infants.

(2) Record accurately and in detail all signs and observations of withdrawal.

(a) Time of onset.

(b) Duration and frequency.

(c) Severity.

(d) Treatment initiated and response.

(e) Vital signs.

(3) Decrease environmental stimuli, minimize handling.

(4) Be flexible in delivery of nursing care. The infant may be responsive to swaddling one time and react with irritability the next.

(5) Maintain fluid/caloric requirements.

(a) I&O.

(b) IV

(c) Increased caloric intake.

(d) Feed on demand schedule.

(6) Know drug actions/adverse reactions when the infant is receiving drug therapy.

11-11. INFANT WITH FETAL ALCOHOL SYNDROME

a. **Infant with fetal alcohol syndrome**. An infant with fetal alcohol syndrome (FAS) is caused by alcohol passing freely through the placental barrier and into the fetal tissue. The level of alcohol in fetal circulation is about equal to the maternal level. The fetus nerve cells are affected more than any other tissue cells. Figure 11-5 shows an infant with FSA while figure 11-6 shows older children with FAS.

Figure 11-5. Infant with fetal alcohol syndrome.

Figure 11-6. Children with fetal alcohol syndrome.

b. **Signs and Symptoms**.

(1) Flattened profile.

(2) Short, low-bridged nose with epicanthal folds and anteverted nostrils.

(3) Microcephaly (abnormal smallness of the head).

(4) Developmental delay and delay of fine motor dysfunction.

(5) Joint anomalies related to diminished fetal movement in utero and neurologic impairment.

(6) Cardiac defects.

c. **Associated Complications**.

(1) Hypothermia.

(2) Hypoglycemia.

(3) Neonatal asphyxia.

(4) Pulmonary hemorrhage.

(5) Polycythemia.

(6) Feeding difficulties.

d. **Nursing Care Considerations**.

(1) Observe for withdrawal. It is still a controversial issue on whether the FAS infant actually experiences alcohol withdrawal symptoms. However, withdrawal symptoms include:

(a) High-pitched cry.

(b) Arching of the back.

(c) Apnea and bradycardia.

(d) Loose stools.

(2) Ask the physician if you can send a urine sample for a drug screen and have a serum ETOH done if you suspect withdrawal.

(3) Measure the infant's abdominal circumference if distention exists. The infant may require a nasogastric tube insertion.

(4) Minimize external stimuli.

(5) Feed frequently.

(6) Help the mother deal with the situation.

11-12. CLUBFOOT (TALIPES EQUINOVARUS)

a. Clubfoot is one of the most common disorders of the lower extremities. It is marked primarily by a deformed talus and shortened Achilles tendon that gives the foot a characteristic club like appearance (see figure 11-7). Clubfoot may be associated with other birth defects such as myelomeningocele.

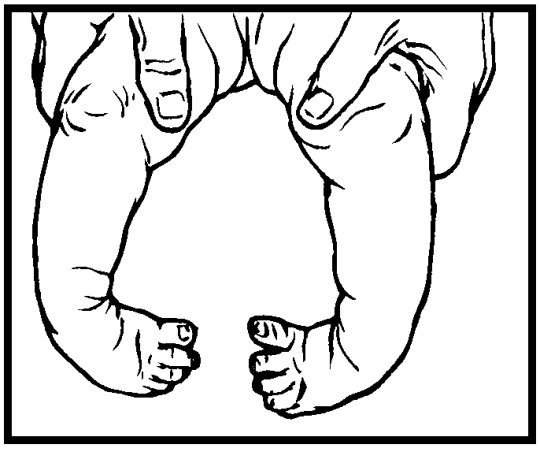


Figure 11-7. Clubfoot.

b. Signs and symptoms include the following.

(1) Shortened Achilles tendon.

(2) Calf muscles may be shortened and underdeveloped.

(3) Foot is tight in its deformed position and resists manual efforts to push it back into its normal position.

(4) Painless.

c. Treatment is administered in three stages: Correcting the deformity, maintaining the correction until the foot regains normal muscle balance, and observing the foot several years to prevent the deformity from recurring. The ideal time to begin treatment is during the first few days and weeks of life.

(1) Manipulation of the foot/feet and casting. A plaster of Paris cast is applied from the groin with the knee flexed. Once the deformity is fully corrected, the foot is held in an over corrected position in a solid cast for three to six weeks.

(2) Exercise. Passive stretching exercises are done to manipulate the foot/feet into normal position.

(3) Night splints . The Denis Brown splint is composed of a flexible horizontal bar that is attached to a pair of foot plates. The infant's feet are attached to foot plates and positioning the abduction bar and the foot plates controls the desired position of the foot.

(4) Orthopedic shoes . Orthopedic shoes may be worn during the day or as necessary.

(5) Surgery. Resistant clubfoot may require surgery.

d. Nursing intervention.

(1) Be able to recognize clubfoot as early as possible. This is of primary concern.

(2) Stress the importance of prompt treatment to parents.

(3) Care for the cast.

Continue with Exercises

EXERCISES, LESSON 11

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the exercise, by completing the incomplete statement, or by writing the answer in the space(s) provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. List the three characteristics of a SGA infant.

   _____

   _____

   _____

2. The defining characteristics of a SGA infant specifies that they are small for their:

   _____

3. _____ infants refers to those infants whose birth weight places them above the 90th percentile of normal for their gestational age.

4. The_____ and the _____ are the two body systems that are most commonly affected by congenital anomalies in a SGA infant?

5. Age-related gestational conditions refers to the:

   _____ infant and the _____ infant.

6. List the three complications of jaundice:

   _____

   _____

   _____

7. If an infant survives a severe case of intracranial hemorrhage, he will subjected to a higher risk of:

_____

_____

_____

_____

8. The degree of withdrawal symptoms the infant of an addicted mother manifests may be possibly related to:

_____

_____

_____

9. A catheter passed through the nose is one method used to diagnose tracheoesophageal fistula and esophageal atresia. Other methods are:

_____

_____

_____

For exercises 10 through 17. Match the terms in Column A with the correct definition or statement as listed in Column B. Place the letter of the correct answer in the space provided to the left of Column A.

COLUMN A	COLUMN B
____ 10. Esophageal atresia.	a. Gestation period is 42 weeks or longer.
____ 11. Clubfoot.	b. Frothy sputum.
____ 12. Down's syndrome.	c. Treatment for Erythroblastosis fetalis.
____ 13. Esophageal mobility dysfunction.	d. Marked hypotonia and floppiness.
____ 14. Erythroblastosis fetalis symptom.	e. One of the most common disorders of the lower extremities.
____ 15. RDS symptom.	f. The esophagus fails to form a continuous passage from the pharynx to the stomach.
____ 16. Exchange transfusion.	g. Postoperative complication of tracheoesophageal fistula.
____ 17. Postmature infant.	h. Bile-stained umbilical cord.

For exercises 18 through 26. The following exercises refer to nursing care considerations/procedures for the twelve problems of the neonate. Match the correct nursing care considerations procedures in Column A to the neonate problem in Column B. Place. your answer in the spaces provided to the left of Column A.

COLUMN A	COLUMN B
____ 18. Access hematocrit.	a. LGA infant.
____ 19. Feed frequently.	b. Intracranial hemorrhage.
____ 20. Decrease environmental stimuli.	c. Down's syndrome.
____ 21. Employ measures to prevent infection.	d. Clubfoot.
____ 22. Avoid stressful or stimulating procedures.	e. Tracheoesophageal fistula or esophageal atresia.
____ 23. Monitor ABGs.	f. Erythroblastosis fetalis.
____ 24. Stress importance of prompt treatment to parents.	g. Respiratory Distress Syndrome.
____ 25. Be alert and careful of infant's feeding.	h. Infant of addicted mother.
____ 26. Perform pulmonary. physiotherapy.	i. SGA infant.
	j. Fetal Alcohol Syndrome.

Check Your Answers on Next Page

SOLUTIONS, LESSON 11

1. The infant appears thin and wasted, skin is loose and dry.
   There is little subcutaneous fat, the face appears shrunken and wrinkled.
   The length and head size may be normal but the head looks comparison really big in comparison to the rest of the body. (para 11-2a)

2. Designated gestational age. (para 11-2a)

3. Large for gestational age. (para 11-2b)

4. Genitourinary system.
   Cardiovascular system. (para 11-2a(3)(f))

5. Premature.
   Postmature. (para 11-3a, b)

6. Kernicterus.
   Nephrotoxic.
   Hearing loss. (para 11-4c)

7. Permanent cerebral damage.
   Hydrocephalus.
   Mental and neurologic impairment.
   Cerebral palsy. (para 11-5d)

8. Duration of mother's habit.
   Type and dosage requirements of her addiction.
   Mother's drug level immediately prior to delivery. (para 11-10b)

9. Chest x-ray.
   Abdominal x-ray.
   Cinefluorography. (para 11-6d)

10. f (para 11-6a(2))

11. e (para 11-12a)

12. d (para 11-7b(2))

13. g (para 11-6e(1)(b))

14. h (para 11-8b(6))

15. b (para 11-9c(6))

16. c (para 11-8c(2))

17. a (para 11-3b)

18. e (para 11-2a(4)(e))

19. j (para 11-11d(5))

20. h (para 11-10g(3))

21. a (para 11-2b(2)(c))

22. b (para 11-5c(2))

23. g (para 11-9e(1))

24. d (para 11-12d(2))

25. c (para 11-7g(1))

26. e (para 11-6f(1)(b))

End of Lesson 11

GLOSSARY

A

abortion - Termination of pregnancy before the fetus is viable and capable of extrauterine existence.

amniocentesis - The withdrawal of amniotic fluid by insertion of a needle through The abdominal and the uterine wall.

amniotic fluid embolism - Accidental infusion of amniotic fluid into the mother's bloodstream under pressure from the contracting uterus.

APGAR scoring - A method of evaluating the condition of a newborn.

B

bilirubin -- Yellow or orange pigment that is a breakdown product of hemoglobin.

C

caput succedaneum - An abnormal collection of fluid under the scalp or on top of the skull that may or may not cross the suture lines.

cardinal movements - Movements made by the fetus during the first and second stage of labor.

cephalhematoma - A collection of blood between a cranial bone and its overlying periosteum.

D

dilation and curettage (D&C) - Dilation of the cervix and curettage of the uterus.

dystocia of labor - Labor that is difficult which is due to mechanical and functional factors.

E

ectopic pregnancy - Pregnancy that does not occupy the uterine cavity properly.

edema - Abnormal excessive fluid within the body tissues.

edematous - Characterized by the presence of edema.

emergency delivery - Refers to an unplanned,.non-delivery room,.non-hospital birth which occurs as a result of precipitious labor, geographical distance from the hospital, or other cause for the unexpected delivery.

erythoblasts - An immature, inadequate form of red blood cells normally found only in the bone marrow.

F

G

grandmultipara - A woman who has had six or more births past the age of viability.

gravida - A pregnant woman; refers to any pregnancy regardless of duration.

H

hemolysis - A disruption of the integrity of the red cell membrane which causes the release of hemoglobin.

hormone - A chemical substance produced in an organ, which, being carried to an associated organ by the bloodstream, excites in the later organ a functional activity.

hydatidiform mole - An abnormal growth of a fertilized ovum.

hydramnios - An excess of amniotic fluid.

hyperemesis gravidarun - Severe nausea and vomiting that lasts beyond the fourth month of pregnancy.,

hypoglycemia - A deficiency of glucose in the blood.

hyponatremia - A deficiency of sodium in the blood.

hypothermia - Refers to subnormal temperature.

I

identical twins - Twins developed from a single fertilized ovum; they are of the same sex.

in utero - Within the uterus.

ischial spines - Two relatively sharp bony projections protruding into the pelvic outlet from the ischial bones that form the lower lateal border of the pelvis. It is used in determining the progress of the fetus down the birth canal.

ischial tuberosities - The major bony sitting support; important in measuring a transverse diameter of the pelvis.

isthmus - The portion of the uterus that joins the corpus to the cervix.

J

K

L

lactation - The production of milk by the mammary glands.

lochia flow - Vaginal discharge during the puerperium consisting of blood, tissue, and mucous.

M

mastitis - Inflammation of the breast tissue.

molding - Shaping of the baby's head as it travels through the birth canal.

morning sickness - Refers to nausea and vomiting usually in the morning during the first weeks of pregnancy.

multi-fetal pregnancy - Pregnancy involving two or more fetuses.

multigravida - A woman who has been pregnant more than once.

multipara - A woman who has delivered two or more fetuses past the age of viability.

myelomeningocele - A hernial protrusion of the cord and its meninges through a defect in the vertebral canal.

N

neonatal - Refers to the newborn infant or the first four weeks of life after birth.

NPO - Latin abbreviation, nil per os; nothing by mouth.

nulligravidi - A woman who has never been pregnant.

nullipara - A woman who has not delivered a child who reached viability.

O

obstetrics - The branch of medicine concerned with the care of a woman during pregnancy, childbirth, and the postpartal period.

oliguria - Secretion of a diminished amount of urine in relation to the fluid intake.

operative obstetrics - Refers to a number of special procedures (episiotomy, forceps delivery, cesarean section, induction of labor) which the physician may use to assist the patient in labor and delivery.

P

palpation - Examination by touch or feel.

para - A woman who has delivered a viable child (not necessarily living at birth).

placenta - A specialized disk-shaped organ that connects the fetus to the uterine walls for gas and nutrient exchange; also referred to as the afterbirth.

placental abruption - Premature separation of a normally implanted placenta.

placenta previa - A placenta that is implanted in the lower uterine segment so that it adjoins or covers the internal os of the cervix.

polycythemia - An abnormal condition that is characterized by an excess of red blood cells.

polyuria - The passage of a large volume of urine in a given period.

postnatal - Occurring after birth.

postpartum - The period after childbirth, or after delivery.

post term pregnancy - Pregnancy that goes beyond 42 weeks gestation.

precipitate delivery - Refers to delivery which results after an unusually rapid labor (less than 3 hours) and culminates in the rapid, spontaneous expulsion of an infant.

prenatal - Before birth; also referred to as antepartal.

preterm labor - Labor that occurs prior to 38 weeks gestation.

primigravida - A woman pregnant for the first time

primipara - A woman who has delivered one child after the age of viability.

puerperal infection - Any infection of the reproductive tract during the first six weeks of postpartum.

Q

R

S

T

term pregnancy - A gestation of 38 to 42 weeks.

thrompophlebitis - Inflammation or infection of pooled and clotted blood in a vein.

U

V

varicose veins - Permanently distended veins.

varicosities - Refers to dilated, tortuous veins which result from incompetent values within those veins

viability - The capability of a fetus to survive outside the uterus at the earliest gestation age, approximately 22 to 23 weeks gestation.

W

X

Y

Z

End of Glossary